

PIXMA MP950

SERVICE MANUAL

Canon

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I. MANUAL OUTLINE

This manual consists of the following three parts to provide information necessary to service the PIXMA MP950:

Part 1: Maintenance

Information on maintenance and troubleshooting of the PIXMA MP950

Part 2: Technical Reference

New technology and technical information such as FAQ's (Frequently Asked Questions) of the PIXMA MP950

Part 3: Appendix

Block diagrams and pin layouts of the PIXMA MP950

Reference:

This manual does not provide sufficient information for disassembly and reassembly procedures. Refer to the graphics in the separate Parts Catalog.



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Part 1

MAINTENANCE



1. MAINTENANCE

1-1. Adjustment, Periodic Maintenance, Periodic Replacement Parts, and Replacement Consumables by Service Engineer

(1) Adjustment

	Adjustment	Timing	Purpose	Tool	Approx. time
	EEPROM reset	At logic board replacement	To reset each setting	None. Perform in the service mode.	1 min.
	LCD language settings	At logic board replacement	To set the language to be displayed on the LCD.	None. Perform in the user mode.	1 min.
	Destination setting (EEPROM settings)	At logic board replacement	To set destinations	None. Perform in the user mode.	1 min.
	Waste ink counter resetting (EEPROM settings)	- At logic board replacement - At waste ink absorber replacement	To reset the waste ink counter.	None. Perform in the service mode.	1 min.
	Waste ink amount settings (EEPROM settings)	- At logic board replacement - At waste ink absorber replacement	To set the waste ink amount to the waste ink counter.	None. Perform in the service mode.	1 min.
	Paper feed motor position adjustment	At paper feed motor replacement	To adjust the belt tension. (Position the paper feed motor so that the belt is stretched tight.)	None.	2 min.
	CD / DVD detection sensor light volume correction *1	- At logic board replacement - At carriage unit replacement	To correct the light volume for the CD / DVD detection sensor.	None. Perform in the service mode.	2 min.
	Grease application	- At carriage unit replacement - At PR shaft ass'y replacement - At CL base or CL gear replacement	- To maintain sliding properties of the carriage shaft and the lift cam shaft. - To protect the machine's sliding portions (gears).	FLOIL KG-107A	1 min.
New	Ink system function check	- At logic board replacement - At platen unit replacement - At carriage unit replacement	To maintain detection functionality for presence of the ink tanks and each ink tank position.	None. Perform in the service mode.	1 min.
	FAU sponge sheet position	- At FAU sponge sheet replacement - At FAU sponge frame replacement - At scanning unit replacement	To position the FAU sponge sheet	None.	2 min.

Note: DO NOT loosen the red screws at both ends of the carriage shaft, securing the print head position, as they are not re-adjustable.

The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.

*1: Only for CD / DVD printing supported regions.

(2) Periodic maintenance

No periodic maintenance is necessary.

(3) Periodic replacement parts

There are no parts in this machine that require periodic replacement by a service engineer.

(4) Replacement consumables

There are no consumables that require replacement by a service engineer.

1-2. Customer Maintenance

Adjustment	Timing	Purpose	Tool	Approx. time
Print head alignment	At print head replacement.	To ensure accurate dot placement.	- Machine buttons - Computer (automatic settings via the MP driver)	3 min.
Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Machine buttons - Computer (settings via the MP driver)	1 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	- Machine buttons - Computer (settings via the MP driver)	2 min.
Ink tank replacement	When an ink tank becomes empty. ("No ink error" displayed on the monitor, or short flashing of an ink tank LED)	-----	-----	2 min.
Paper feed roller cleaning	When paper does not feed properly.	To clean the paper feed rollers.	Machine buttons	2 min.
CD / DVD print position adjustment* ¹	At CD / DVD printing, when necessary.	To correct CD / DVD print position.	Computer (application software)	5 min.
Bottom plate cleaning	When the back side of the paper is smeared.	To clean the platen ribs.	- Plain paper - Computer (settings via the MP driver)	1 min.
Scanning area cleaning	- When the platen glass is dirty. - When the FAU lamp is dirty. - When the FAU protective sheet is dirty.	- Clean the platen glass. - Clean the FAU lamp - Clean the FAU protective sheet	Clean and soft cloth	1 min.
ASF sub-roller cleaning	When the paper fed from the ASF is smeared due to ink mist attached to the ASF sub-rollers.	To clean the ASF sub-rollers.	- Plain paper - Machine buttons (paper feed roller cleaning) [See Part 2, 5. FAQ, How to make and set the ASF sub-roller cleaning sheet, for details]	1 min.

*1: Only for CD / DVD printing supported regions.

1-3. Product Life

(1) Machine

Specified print volume (I) or the years of use (II), whichever comes first.

(I) Print volume: 14,000 pages

Black	1,500 character pattern	6,000 pages
Color	A4, 7.5% duty per color pattern	3,500 pages
	A4, photo, borderless printing	400 pages
	4 x 6, photo, borderless printing	3,000 pages
	Postcard, photo, borderless printing	1,100 pages

(II) Years of use: 5 years of use

(2) Print head

Print volume: 14,000 pages

Black	1,500 character pattern	6,000 pages
Color	A4, 7.5% duty per color pattern	3,500 pages
	A4, photo, borderless printing	400 pages
	4 x 6, photo, borderless printing	3,000 pages
	Postcard, photo, borderless printing	1,100 pages

(3) Ink tank (target value)

Pattern	Ink tank used	Print yield
Black text	PGI-5BK	Approx. 870 pages
Color chart	PGI-5BK	Approx. 1,400 pages
	CLI-8Y	Approx. 510 pages
	CLI-8M	Approx. 540 pages
	CLI-8C	Approx. 830 pages
Photo chart	CLI-8BK	Approx. 1,500 pages
	CLI-8Y	Approx. 320 pages
	CLI-8M	Approx. 600 pages
	CLI-8C	Approx. 1,000 pages
	CLI-8PM	Approx. 140 pages
	CLI-8PC	Approx. 220 pages

Black text: When printing the Canon standard pattern (1,500 characters per page) on A4 size plain paper, with the default settings in the Windows XP driver, using Word 2003.

Color chart: When printing the ISO/JIS-SCID N5 pattern on A4 size plain paper in bordered printing, with the default settings in the Windows XP driver, using Photoshop 7.0.

Photo chart: When printing the Canon standard pattern on 4" x 6" Photo Paper Plus Glossy in borderless printing, with the default settings in the Windows XP driver, using Windows XP Photo Printing Wizard.

The print yield in the table above is an average value measured in continuous printing, using the ink tank immediately after it is unsealed, until the ink is out. Ink yield may vary depending on texts and photos printed, application software, print mode, and type of paper used.

When the machine is turned on and while printing, each ink may be used for protecting the print head and maintaining print quality.

1-4. Special Tools

Name	Tool No.	Application	Remarks
FLOIL KG-107A	QY9-0057-000	To be applied to the sliding portions of the carriage shaft and lift cam shaft.	In common with the S500 and S520.

1-5. Serial Number Location

On the carriage flexible cable holder (visible on the right of the carriage after the machine is turned on, the scanning unit is opened, and the carriage moves to the center).



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2. LIST OF ERROR DISPLAY / INDICATION

Errors and warnings are displayed on the LCD.

2-1. Operator Call Errors (by Alarm LED Blinking in Orange)

Error	Error code	Message on the LCD	Solution
No paper (ASF).	[1000]	Auto sheet feeder. There is no paper. Load paper and press [OK].	Set the paper in the ASF, and press the OK button.
No CD / DVD tray.*1	[1001]	There is no CD-R tray. Attach the tray and press [OK].	Set the CD / DVD tray, and press the OK button.
No paper in the front paper feed cassette.	[1003]	Cassette. There is no paper. Load paper and press [OK].	Set the paper in the cassette, and press the OK button.
No CD or DVD*1.	[1002]	Printable disc is not set. Correctly place a disc in the CD-R tray and press [OK].	Set a CD or DVD in the CD / DVD tray (which is ejected at error occurrence), and inset the CD / DVD tray in the proper position. Then, press the OK button.
Paper jam.	[1300]	The paper is jammed. Clear the paper and press [OK].	Remove the jammed paper, and press the OK button.
Paper jam in the rear guide.	[1303]		
Paper jam in the under guide.	[1304]		
No ink.	[1600]	Ink has run out. Replace the ink tank and close the cover. (U041)	Replace the empty ink tank(s) and close the cover. When pressing the OK button, printing can be continued though ink may run out during printing..
Ink tank not installed.	[1660]	The following ink tank cannot be recognized. Applicable ink color (U043)	Install the applicable ink tank(s) properly, and confirm that the LED's of all the ink tanks light red.
The print head is not installed or it is not properly installed.	[1401]	Print head is not installed. Install the print head.	Install the print head properly.
The print head temperature sensor error	[1403]	Error code	Handle this error by turning ON/OFF the machine. If not recovered, the print head may have problems. Replace the print head.
Faulty EEPROM data of the print head	[1405]		
Inner cover open before printing on paper.	(print continuable). [1841]*2	Inner cover is open. Close the inner cover and press [OK].	Close the inner cover, and press the OK button.
Inner cover open during printing on paper.	(print NOT continuable). [1846]*2		Close the inner cover, and press the OK button to clear the error. The paper being printed at error occurrence will be ejected without printing the remaining data for the ejected paper, then printing will resume from the next page.
Inner cover open during printing on paper (print continuable).	(print continuable). [1851]*1		Close the inner cover, and press the OK button.
Inner cover open during printing on paper	(print NOT continuable). [1856]*1		Close the inner cover, and press the OK button to clear the error. The paper being printed at error occurrence will be ejected without printing the remaining data for the ejected paper, then printing will resume from the next page.
Inner cover closed during CD / DVD printing	(print continuable). [1850]*1	Open the inner cover, place the CD-R tray and press [OK].	Open the inner cover which functions as the CD / DVD tray feeder, set the CD / DVD tray in the feeder, and press the OK button.
Inner cover closed during CD / DVD printing	(print NOT continuable). [1855]*1		Open the inner cover, and press the OK button to clear the error. The CD or DVD being printed at error occurrence will be ejected without printing the remaining data for the ejected CD or DVD, then the next print job will be done.
Multiple ink tanks of the same color installed.	[1681]	More than one ink tank of the following color is installed. (U075)	Replace the wrong ink tank(s) with the correct one(s).
Ink tank in a wrong position.	[1680]	Some ink tanks are not installed in place. (U072)	Install the ink tank(s) in the correct position.
Warning: The waste ink absorber becomes almost full.	[1700]	The waste ink absorber is almost full. Press [OK] to continue but early replacement recommended. <See manual>	Press the OK button. The waste ink absorber full error (service call error) may occur soon.
The connected digital camera or digital video camera does not support Camera Direct Printing.	[2001]	Incompatible device detected. Remove the device.	Remove the cable between the camera and the machine.
Automatic duplex printing cannot be performed.	[1310]	This paper is not compatible with duplex printing. Remove the paper and press [OK].	Press the OK button to eject the paper being used at error occurrence. Printing will resume from on the front side of the next page. Te data of the back of the page in printing when the error occurred is not printed.
Failed in automatic print head alignment.	[2500]	Auto head align has failed. Press [OK] and repeat operation. <See manual>	Press the OK button. - If paper is being fed at error occurrence, the error is indicated after the paper is ejected. - If the error occurs, the print head alignment values are not changed. - After exit from the error by the OK button, the automatic print head alignment will not be re-done. When printing was not possible due to no ink or no ink ejection, or, the AD value of the sensor was incorrect.

The remaining ink amount unknown.	[1683]	(Applicable ink tank icon) The remaining level of the following ink cannot be correctly detected.	An ink tank which has once been empty is installed. Replace the applicable ink tank with a new one. If continuing printing, the print head may be damaged. When continuing printing using the ink tank in which ink was refilled, press the Reset button for more than five seconds to leave the history which shows that the ink tank in which ink had been refilled was used. * After this operation, the ink remaining detection function is released.
Ink tank not recognized.	[1684]	(Applicable ink tank icon) The following ink tank cannot be recognized. (U140)	A non-supported ink tank is installed (the ink tank LED is turned off). Install the supported ink tanks.
Ink tank not recognized.	[1410 to 1419]	(Applicable ink tank icon) The following ink tank cannot be recognized. (U150)	An error occurred in an ink tank (the ink tank LED is turned off). Replace the ink tank(s).
Scanning unit (access cover) open.	[1200]	Cover is open. Close the cover.	Close the scanning unit (access cover).

*1: Only for models supporting CD / DVD printing

*2: Only for models not supporting CD / DVD printing

2-2. Service Call Errors (by Cyclic Blinking in Orange (Alarm LED) and Green (Copy LED))

Service call errors are indicated by the error code. (excluding scanner lock error / scanner malfunction error)

Cycles of blinking in orange (Alarm LED) and green (Copy LED)	Error	Error code	Conditions	Solution (Replacement of listed parts, which are likely to be faulty)
2 times	Carriage error	[5100]	An error occurred in the carriage encoder signal.	- Carriage unit - Timing slit strip film - Logic board ass'y - Carriage motor
3 times	Line feed error	[6000]	An error occurred in the line feed signal.	- Timing sensor unit - Timing slit disk film - Feed roller - Platen unit - Logic board ass'y - Paper feed motor
4 times	Purge cam sensor error	[5C00]	An error occurred in the purge unit.	- Purge unit - Logic board ass'y
5 times	ASF (cam) sensor error	[5700]	This error takes place when feeding paper from the ASF after an error occurred in the ASF cam sensor.	- Sheet feed unit
6 times	Internal temperature error	[5400]	The internal temperature is not proper.	- Logic board ass'y
7 times	Waste ink absorber full	[5B00]	The waste ink absorber is full.	- Ink absorber kit
8 times	Print head temperature rise error	[5200]	The print head temperature exceeded the specified value.	- Print head - Logic board ass'y
9 times	EEPROM error	[6800]	A problem occurred in writing to the EEPROM.	- Logic board ass'y
11 times	Carriage lift mechanism error	[5110]	The carriage did not move up or down properly.	- PR lift shaft ass'y - Sheet feed unit - Logic board ass'y - Carriage lift sensor unit
12 times	AP position error	[6A00]	An error occurred in the AP motor during purging operation.	- Sheet feed unit - Logic board ass'y - Purge unit
13 times	Paper feed position error	[6B00]	An error occurred in the paper feed motor.	- Sheet feed unit - Logic board ass'y
14 times	Paper feed cam sensor error	[6B10]	An error occurred in the paper feed cam sensor during paper feeding from the front paper feed cassette. This error is also indicated when the waste ink counter is 60% or more, and a paper jam occurs in the under guide.	- Sheet feed unit - Logic board ass'y
15 times	USB Host VBUS overcurrent	[9000]	The USB Host VBUS is overloaded.	- Logic board ass'y
16 times	Valve sensor error	[6C00]	An error occurred in the valve sensor during cleaning.	- Logic board ass'y - Purge unit
17 times	Motor driver error	[6D00]	The AD conversion value indicating the motor driver temperature is not proper.	- Logic board ass'y
19 times	Ink tank position sensor error	[6502]	None of the ink tank position is detected.	- Platen unit - Logic board ass'y
20 times	Other hardware error	[6500]	The PCI bus error is detected by the ASIC.	- Logic board ass'y
Alarm LED lit	Scanner lock error	[5020]	The scanner unit cannot detect the home position at power-on. Because it is assumed that the machine was powered with the lock lever locked, although this error is classified as the service call error, this error is indicated by both Alarm LED (orange) and the LCD message as in an operator call error. On the LCD, "Release the scanner lock switch and turn off the machine and then on." is displayed.	- Releasing of the scanner lock lever - Turn off the machine and then on
22 times	Scanner error	[5010]	The scanner unit cannot detect the home position, or the scanner unit warming-up is not done properly at power-on. On the LCD, "Scanner is not operating correctly." is displayed.	- Scanner unit
Continuous alternate	ROM error	[6100]	The check sum value is incorrect in the ROM check at hard-power-on.	- Logic board ass'y

blinking				
Alarm LED lit	RAM error	[6300]	The RAM error occurred in the RAM check at hard-power-on.	- Logic board ass'y

2-3. Other Error Messages

Message on the LCD	Cause	Solution
Printing is unavailable. Data received via wireless communication is not photo data.	The received image data was invalid in infrared communication from a mobile phone.	The error message is displayed for a while, then the LCD automatically returns to the initial screen you see when the COPY, SCAN, FILM SOURCE, or MEMORY CARD button is pressed.
The selected paper cannot be fed from cassette. Change the paper source.	The paper type being used is not supported for paper feeding from the cassette. (Business Card, Credit Card size paper and Photo Stickers are not supported.)	Change the paper source to the ASF.
Cannot specify the followings together. Change one of the settings.	Settings made conflict each other.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
Device memory is full. Cannot continue process. Reduce the number of photos to print.	The memory is not sufficient to do the print job.	Reduce the amount of data to be printed, or print from a computer.
Failed to scan. Either document cannot be scanned or is not placed on the platen glass.	The machine failed in scanning the document for Fit-to-page copy, or when doing pre-scanning in a photo / film, the photo / film cannot be recognized.	Press the OK button to clear the error. The LCD automatically returns to the display before the error occurrence.
Press  .	The Black button was pressed, but it is invalid.	A temporary error. Press the Color button to continue the operation.
Press  .	The Color button was pressed, but it is invalid.	A temporary error. Press the Black button to continue the operation.
There are no photos in memory card.	Supported image files are not in the memory card.	The error message is displayed for a while, then disappears.
The value exceeds the number of copies you can print.	During selecting images or specifying the number of copies, the total print quantity exceeds the prescribed value of 999.	After the error message is displayed for a while, the last operation before the error is cancelled, and the total print quantity returns to the value before the error.
Memory card is not set. Insert the card after checking the direction.	No memory card is inserted in the slot.	Set a memory card.
DPOF information is not saved in the memory card.	DPOF print was selected in the menu, but no DPOF files are contained in the memory card.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
The number of copies to print is not set. Input the number of copies.	Multi-photo print was attempted without specifying the print quantity (with the print quantity left "0" (zero)).	The error message is displayed for a while, then disappears. Specify the print quantity.
This layout is available only for A4 or 8.5"x11"(LTR).	In Layout print, "Mixed 1, 2, or 3" which is available only with A4 or LTR size paper is selected, but the paper size is not set to A4 or LTR.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
Settings cannot be changed when printing stickers.	With Sticker print selected, the Settings button was pressed.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
Change the setting after removing the card.	With a memory card inserted in the slot, change of the Read/Write attribute was attempted.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
The card is currently write-enabled. Set to read-only mode before performing operation.	With the memory card set to the Write-enabled mode, Card Direct printing operation was attempted from the menu.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.
The paper size is not correct. Check the page size you have set.	Non-supported size of paper for Camera Direct (PictBridge) printing is selected.	Cancel printing on the digital camera.
Failed to scan Photo Index Sheet. Check the orientation, position and marking. <See manual>	The machine failed in scanning the Photo Index Sheet.	Press the OK button to clear the error. The LCD automatically returns to the display before the error occurrence.
Failed to scan handwriting sheet. Check orientation and position, and make sure platen and sheet are clean. <See manual>	The machine failed in scanning the handwriting sheet.	Press the OK button to clear the error. The LCD automatically returns to the display before the error occurrence.
Failed to scan. Try again.	Scanning the film failed. Film was not set, or color / black&white or positive / negative settings was wrong.	Press the OK button to clear the error. The LCD automatically returns to the display before the error occurrence.
Film scanning error. Remove FAU (Film Adapter Unit) protective sheet.	The lamp has insufficient illumination for scanning the film. (The sponge frame was not removed, or the lamp has a problem.)	Press the OK button to clear the error. The LCD automatically returns to the display before the error occurrence.
Photo scan error. Photo size is too large. Leave at east 10mm between photos.	Although the images scanned at multi cropping was saved using JPEG, the data size was too large. Because the gap between each photo was too narrow, the data was detected as one image which was too large for photo scanning.	Press the OK button to clear the error. The LCD automatically returns to the display before the error occurrence.
Perform operation after the film is scanned.	In the photo / film mode, the print operation was attempted from the menu screen before scanning the photo / film.	The error message is displayed for a while, then the LCD automatically returns to the display before the error occurrence.

2-4. Warnings

Warning	Message on the LCD	Solution
Low ink	The following ink is low. Continue? (Icon of each ink tank) Yes No	- Select Yes , and press the OK button. => Printing starts, and it is indicated on the LCD.
	In Camera Direct Printing, only "Yes" can be selected.	- Select No , and press the OK button. => Printing is cancelled, and the LCD returns to the display immediately before printing was attempted.
Print head temperature rise	If the print head temperature does not fall, the error code "5200" is displayed, indicating the print head temperature rise error.	When the print head temperature falls, the error is automatically cleared. Note: If the print head temperature exceeds the specified limit when the

		scanning unit (printer cover) is opened, the carriage does not move to the ink tank replacement position.
Protection of excess rise of the print head temperature	If the print head temperature does not fall, the error code "5200" is displayed, indicating the print head temperature rise error.	If the print head temperature exceeds the specified limit, an intermission is inserted during printing.
Restrictions on paper	The current paper cannot be set. Change the size and type.	Re-select the supported paper type and size.
Recommendation of the print head alignment (only on arrival of the machine)	Head alignment required. Load paper and press [OK]. Yes No	- Select Yes , and press the OK button. => Automatic print head alignment is done. - Select No , and press the OK button. => The procedures on arrival of the machine are finished.
USB cable not connected	Connect USB cable and turn on the PC.	Connect the USB cable.
Cancellation of trimming information	Reset trimming effect? Yes No	When DVD / CD printing was attempted with the image with trimming effects present. - Select Yes , and press the OK button. => The trimming information is cancelled, and operation performed before the message was displayed can be continued. - Select No , and press the OK button. => The LCD returns to the display immediately before the message was displayed.
Cancellation of image select information	Reset the selected photo information? Yes No	When one or more images are selected in Multi-photo print or Layout print, and if a user tries to display the menu or sub-menu, the message is displayed. - Select Yes , and press the OK button. => The image selection is cancelled, and the menu or sub-menu is displayed. - Select No , and press the OK button. => The LCD returns to the display immediately before the message was displayed.

2-5. Troubleshooting by Symptom

	Symptom	Solution
Faulty operation	The power does not turn on. The power turns off immediately after power-on.	- Confirm the connection of - the power cord, and - between the logic board and the power supply unit. - Replace the - AC adapter, or - logic board ass'y.
	A strange noise occurs.	- Remove foreign material. - Attach a removed part if any. - Check the operation of the moving parts (such as purge unit, carriage unit, and paper feeding mechanism) - Replace a faulty part, if any.
	Nothing is displayed on the LCD.	- Confirm the connection between the operation panel, the scanner unit, and the logic board. - Replace the - LCD, or - logic board ass'y.
	A portion of the LCD is not displayed.	- Perform the button and LCD test in the service mode, and confirm that the LCD is displayed without any segments missing. - Confirm the connection between the operation panel, the scanner unit, and the logic board. - Replace the - LCD, or - logic board ass'y.
	Paper feed problems (multi-feeding, skewed feeding, no feeding)	- Examine the inside to confirm that no parts are damaged, and the rollers are clean. - Remove foreign material. - Adjust the paper guide properly. - Confirm the connection of each harness and the logic board. - Replace the - sheet feeder unit, - cassette, or - logic board ass'y.
	Carriage movement problems (contact to other parts, strange noise)	- Confirm that the timing slit strip film is free from damage or grease. - Clean the timing slit strip film. (Use ethanol + Silbon paper) - Replace the

		<ul style="list-style-type: none"> - timing slit strip film, or - carriage unit.
	Faulty scanning (no scanning, strange noise)	<ul style="list-style-type: none"> - Confirm the connection between the scanner unit and the logic board. - Replace the <ul style="list-style-type: none"> - scanner unit, or - logic board ass'y.
	FAU lamp not lit	<ul style="list-style-type: none"> - Confirm the connection between the scanner unit and the logic board. - Replace the <ul style="list-style-type: none"> - Document pressure plate unit (FAU), or - logic board ass'y.
Unsatisfactory print quality	No printing, or no color ejected.	<ul style="list-style-type: none"> - Replace the <ul style="list-style-type: none"> - ink tank, - print head*1, or - logic board ass'y. - Remove foreign material from the purge unit caps, if any. - Replace the purge unit.
	Printing is faint, or white lines appear on printouts even after print head cleaning. Line(s) not included in the print data appears on printouts.	<ul style="list-style-type: none"> - Remove and re-install the print head. - Replace the <ul style="list-style-type: none"> - ink tank, - print head*1, - purge unit, or - logic board ass'y.
	Paper gets smeared.	<ul style="list-style-type: none"> - Feed several sheets of paper. - Perform bottom plate cleaning. - Clean the paper path with cotton swab or cloth. - Clean the ASF sub-rollers.
	A part of a line is missing on printouts.	<ul style="list-style-type: none"> - Replace the <ul style="list-style-type: none"> - ink tank, or - print head*1.
	Color hue is incorrect.	<ul style="list-style-type: none"> - Replace the <ul style="list-style-type: none"> - ink tank, or - print head*1. - Perform print head alignment.
	Printing is incorrect.	Replace the logic board ass'y.
	No ejection of black ink.	<ul style="list-style-type: none"> - Replace the <ul style="list-style-type: none"> - ink tank, or - print head*1. - Remove foreign material from the purge unit caps, if any. - Replace the purge unit.
	Graphic or text is enlarged on printouts.	<p>When enlarged in the carriage movement direction:</p> <ul style="list-style-type: none"> - Clean grease or oil off the timing slit strip film - Replace the <ul style="list-style-type: none"> - timing slit strip film, - carriage unit, or - logic board ass'y. <p>When enlarged in the paper feed direction:</p> <ul style="list-style-type: none"> - Clean grease or oil off the timing slit disk film - Replace the <ul style="list-style-type: none"> - timing slit disk film, - timing sensor unit, or - logic board ass'y.
Faulty scanning	No scanning.	<ul style="list-style-type: none"> - Confirm the connection between the scanner unit and the logic board ass'y. - Replace the <ul style="list-style-type: none"> - scanner unit, or - logic board ass'y.
	Streaks or smears on the scanned image.	<ul style="list-style-type: none"> - Clean the platen glass and the FAU lamp. - Confirm the connection between the scanner unit and the logic board ass'y. - Replace the <ul style="list-style-type: none"> - scanner unit, - logic board ass'y, or - sponge sheet

*1: Replace the print head only after the print head deep cleaning is performed 2 times, and when the problem persists.

← <Part 1: 2. LIST OF ERROR DISPLAY / INDICATION> →

3. REPAIR

3-1. Notes on Service Part Replacement (and Disassembling / Reassembling)

Service part	Notes on replacement*1	Adjustment / settings	Operation check
Logic board ass'y QM2-3066	<ul style="list-style-type: none"> - Before removal of the logic board ass'y, remove the power cord, and allow for approx. 1 minute (for discharge of capacitor's accumulated charges), to prevent damages to the logic board ass'y. - Before replacement, check the waste ink amount (by service test print or EEPROM information print). <p>[See 3-4. Verification Items, (1) Service test print, and 3-4. Verification Items (2) EEPROM information print]</p>	<p>After replacement:</p> <ol style="list-style-type: none"> 1. Initialize the EEPROM. 2. Set the destination in the EEPROM. 3. Reset the waste ink counter. 4. Correct the CD / DVD and automatic print head alignment sensors. 5. Check the ink system function. 6. Perform the print head alignment in the user mode. <p>[See 3-3. Adjustment / Settings, (8) Service mode.]</p>	<ul style="list-style-type: none"> - EEPROM information print - Service test print - Printing via USB connection - Copy - Direct printing from a digital camera
Ink absorber kit QY5-0153		<p>After replacement:</p> <ol style="list-style-type: none"> 1. Reset the waste ink counter. <p>[See 3.3. Adjustment / Settings, (8) Service mode.]</p>	<ul style="list-style-type: none"> - Service test print - EEPROM information print
Carriage unit QM2-3065		<p>At replacement:</p> <ol style="list-style-type: none"> 1. Apply grease to the sliding portions. <p>[See 3-3. Adjustment / Settings, (2) Grease application.]</p> <p>After replacement:</p> <ol style="list-style-type: none"> 1. Correct the CD / DVD and automatic print head alignment sensors. 2. Check the ink system function. 3. Perform the print head alignment in the user mode. <p>[See 3.3. Adjustment / Settings, (8) Service mode.]</p>	<ul style="list-style-type: none"> - Service test print (Confirm CD / DVD and automatic print head alignment sensor correction, and ink system function.)
Paper feed motor QK1-1502	<ul style="list-style-type: none"> - The red screws securing the paper feed motor are allowed to be loosened. (DO NOT loosen any other red screws.) 	<p>At replacement:</p> <ol style="list-style-type: none"> 1. Adjust the paper feed motor. <p>[See 3-3. Adjustment / Settings, (1) Paper feed motor adjustment.]</p>	
Platen unit QM2-3026		<p>At replacement:</p> <ol style="list-style-type: none"> 1. Check the ink system function. <p>[See 3.3. Adjustment / Settings, (8) Service mode.]</p>	<ul style="list-style-type: none"> - Service test print
PR lift shaft ass'y QL2-0936		<p>At replacement:</p> <ol style="list-style-type: none"> 1. Apply grease to the sliding portions. <p>[See 3.3. Adjustment / Settings, (2) Grease application.]</p>	<ul style="list-style-type: none"> - Service test print
Carriage lift base unit QM-2232		<p>At replacement:</p> <ol style="list-style-type: none"> 1. Apply grease to the sliding portions. <p>[See 3.3. Adjustment / Settings, (2) Grease application.]</p>	

Timing slit strip film QC1-6526	- Upon contact with the film, wipe the film with ethanol.	After replacement: 1. Perform the print head alignment in the user mode.	- Service test print
Timing slit disk film QC1-6229	- Confirm no grease is on the film. (Wipe off any grease thoroughly with ethanol.) - Do not bend the film		
Print head QY6-0062		After replacement: 1. Perform the print head alignment in the user mode.	- Service test print

*1: General notes:

- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly.

[\[See 3-2. Special Notes on Repair Servicing, \(3\) Flexible cable and harness wiring, connection, for details.\]](#)

- Do not drop the ferrite core, which may cause damage.

- Protect electrical parts from damage due to static electricity.

- Before removing a unit, after removing the power cord, allow the machine to sit for approx. 1 minute (for capacitor discharging to protect the logic board ass'y from damages).

- Do not touch the timing slit strip film and timing slit disk film. No grease or abrasion is allowed.

- Protect the units from soiled with ink.

- Protect the housing from scratches.

- Exercise caution with the red screws, as follows:

i. The red screws of the paper feed motor may be loosened only at replacement of the paper feed motor unit (DO NOT loosen them in other cases).

ii. DO NOT loosen the red screws on both sides of the main chassis, securing the carriage shaft positioning (they are not adjustable in servicing).

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 <Part 1: 3. REPAIR, 3-1> 

3-2. Special Notes on Repair Servicing

(1) External cover, scanner unit and FAU removal

(I) Remove the cassette, the front door (paper output tray), and the door damper.

- Pull out the cassette and remove it from the machine.
- Warp the front door up a little and push its right side downward to remove it from the bottom case.
- When removing the front door, remove the door damper from the hole of the bottom case.



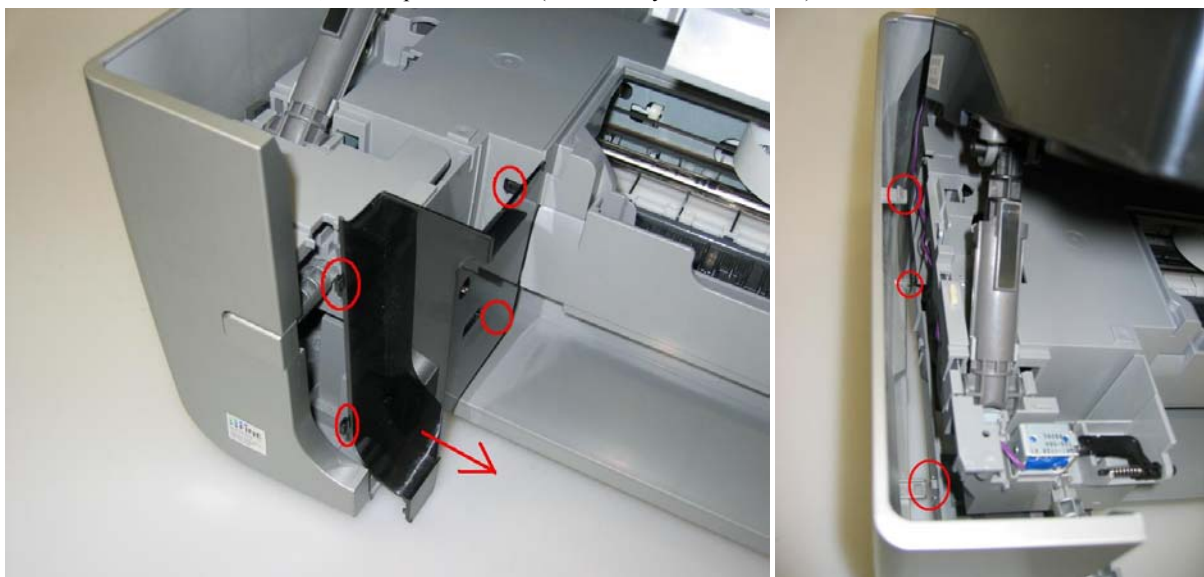
(II) Remove the screws to detach the side cover from the main case.

- Remove the four screws from the back. Then, remove one screw from the upper left and one from the upper right, and detach the side cover from the main case.

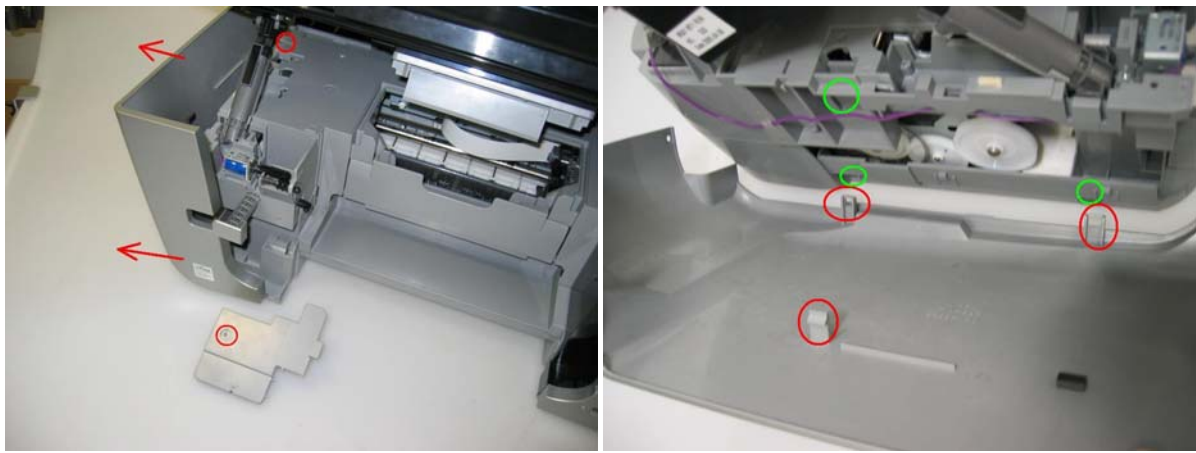


(III) Remove the front cover L and the side cover L.

- Front cover L: Be cautious not to contact the release lever to avoid a scratch or breaking claws.
- After removing the front cover, release the claws of the side cover and detach it from the main case.
- For the claw locations, see the photos below (indicated by the red circles).



- Remove the main case plate L (by removing one screw), and detach the side cover L.
- For the location of the claws on the side cover L, the main case, and the bottom case, see the photos below.

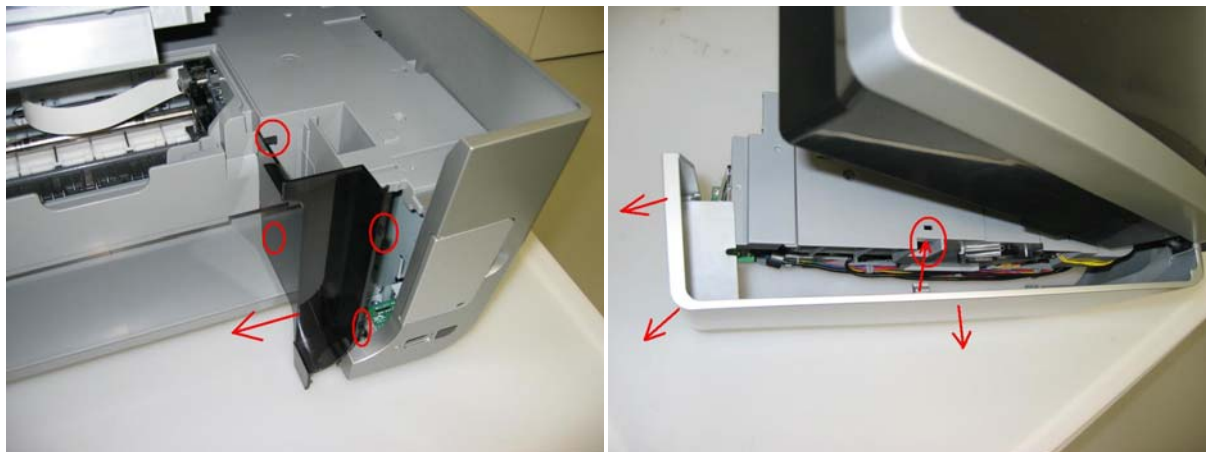


(IV) Remove the front cover R, the side cover R, and the cable cover.

- Front cover R: Be cautious with a scratch or breaking claws.

- For the location of the claws, see the red circles in the photos below.

- After removing the front cover R, detach the main case plate R.

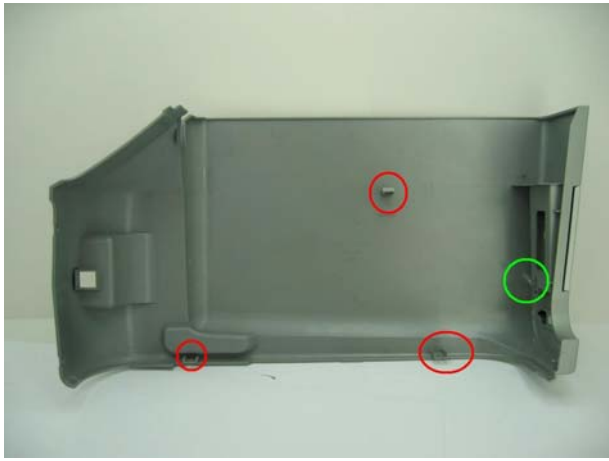
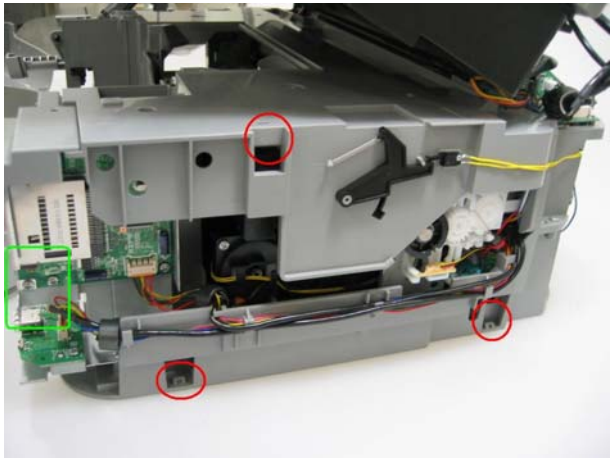


- After detaching the main case plate R (the photo in the left) by removing one screw, remove the cable cover (the photo in the right) by sliding the side cover R outward.



- Remove the side cover R. (Be cautious not to contact with the LED Windows (indicated in green) card board area.

- For the location of the claws on the side cover R, the main case, and the bottom case, see the photos below (Indicated by the red circles).

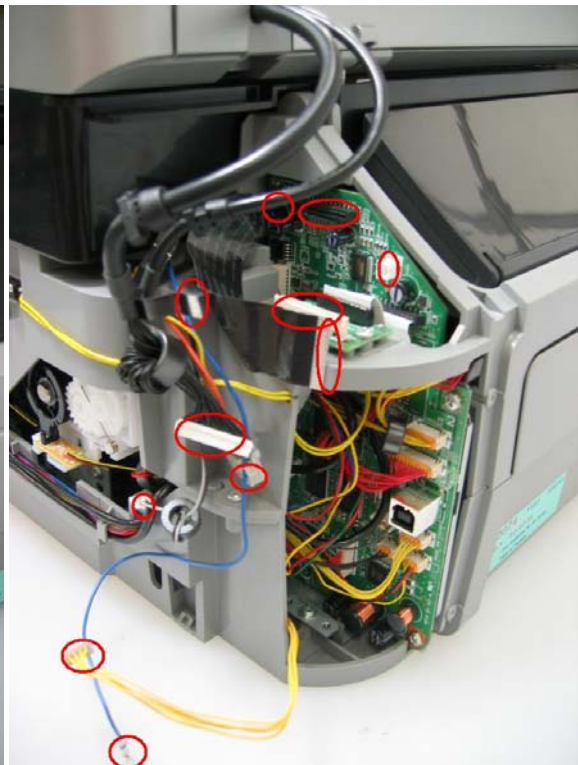


(V) Disconnect the cables which connect the scanner unit and FAU to the logic board and panel relay board.

The left photo: before disconnecting the cable

The right photo: after disconnecting the cable

[\[See 3-2. Connector Location and Pin Layout.\]](#)



(VI) Remove the scanner stop arm.

- While holding the scanner unit, disengage the scanner stop arm from the main case unit.
- Disengage the scanner stop arm from the scanner unit by slightly twisting the scanner stop arm.



When attaching the scanner stop arm, make sure the black sticker faces up.
(The blue rectangular below shows the location of the sticker.)



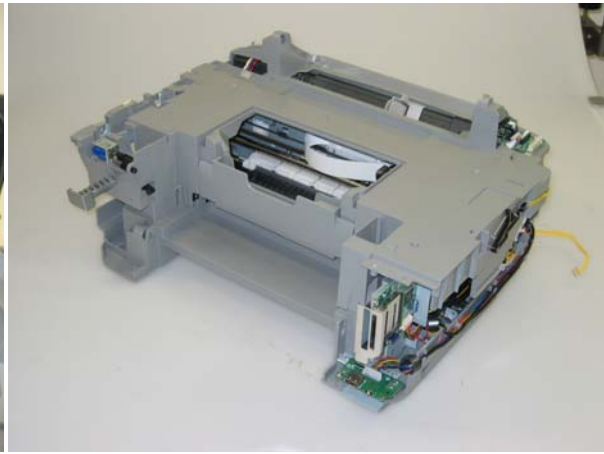
(VII) Remove the FAU and scanner unit.

- Lift the FAU out from the hinge holes of the scanner unit.
- By pulling both sides of the main unit slightly outward, detach the scanner unit from one side, then the other.



(VIII) Remove the paper support.

- Disengage one side of the paper support from the main case, then the other side.
(The photo on the right shows the main case unit with the external parts removed.)



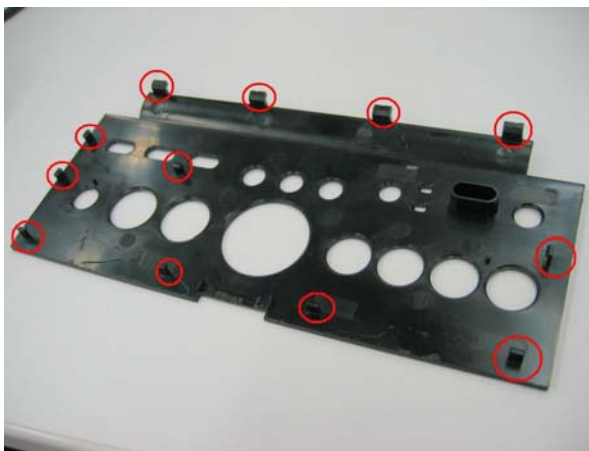
(2) Operation panel removal

(I) Remove the panel cover.

- Insert a thin flat-blade screwdriver in a gap between the panel cover and FAU top cover, then gently lift the panel cover up to remove it.
- Slide the panel forward by pushing up its backside with a screwdriver to release the four claws under the hinge.



- For the claws locations, see the photo in the left which shows the back side of the panel. (indicated by the red circles)
- For the hole locations on the panel, see the photo in the right. (The green circles shows the holes which are usually covered by the LCD monitor.)



(II) Remove the panel board.

- Remove three screws.
- Detach the panel board from the FAU top cover. Take notice that the panel board is hung on the right / left ditch.

(indicated by the red circles)



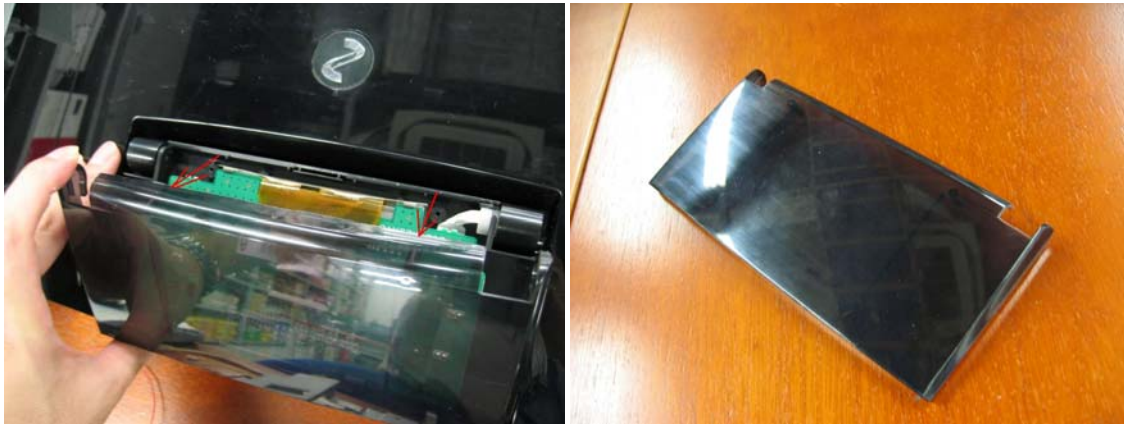
- Remove the cable from the panel board and detach the operation panel unit from the FAU completely.



(III) Remove the LCD top cover.

- Peel off the black stickers (blind sheets indicated by the red circles) from the lower part of the LCD monitor and remove two screws.
- Remove the LCD top cover by raising its foot.
- * The LCD front cover can be removed with the operation panel and the panel board attached.



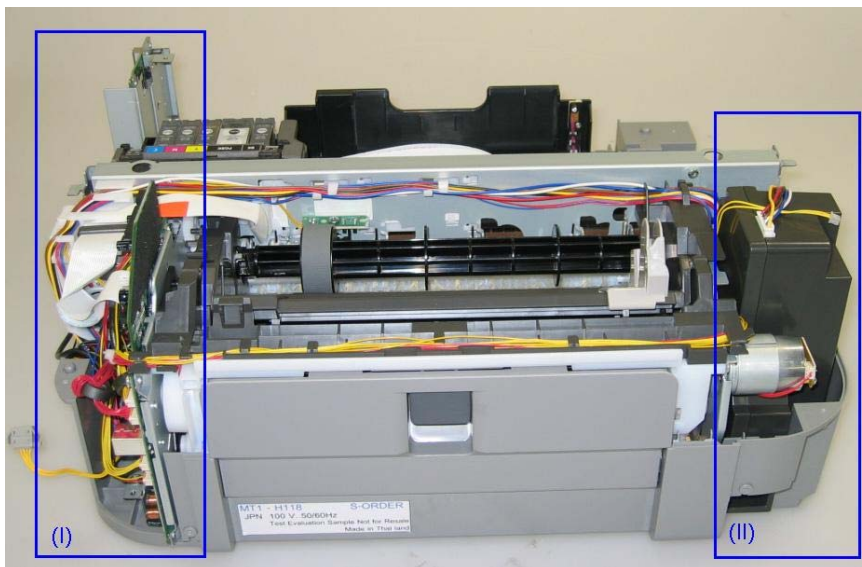


(3) Flexible cable and harness wiring, connection

- Be cautious of wiring of the flexible cables and harness. Improper wiring or connection may cause breakage of a line, leading to ignition or emission of smoke.
- For details on wiring, see Parts Catalog and [\[See 3-2. Connector Location and Pin Layout.\]](#)

< Rear view after removing the main case >

(<I>left side: AC adapter / PF motor, <II>right side: LogicBoard)



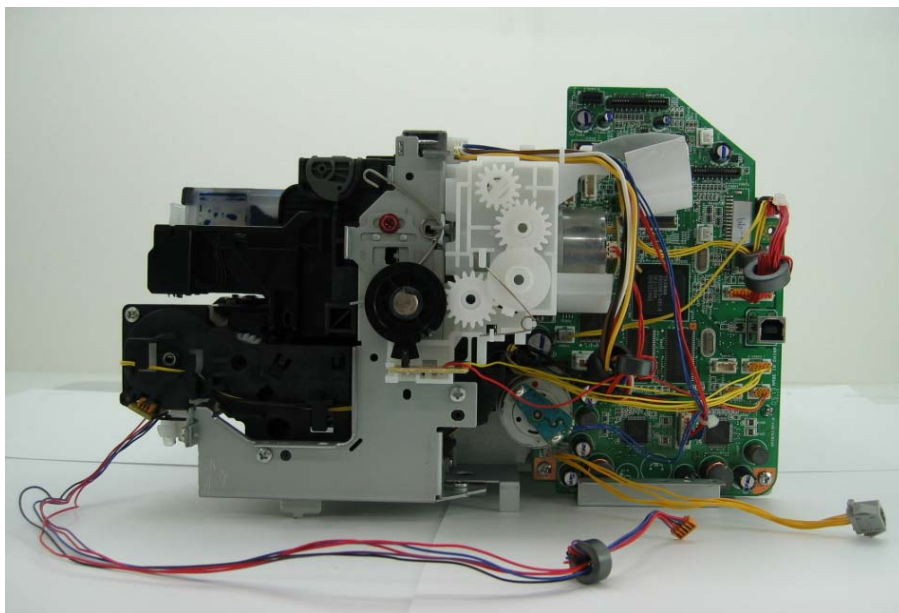
(I) Logic board ass'y wiring

< Status in which each cable is bundled in the right side of the bottom case unit >

(Be cautious of the points in the red circles.)



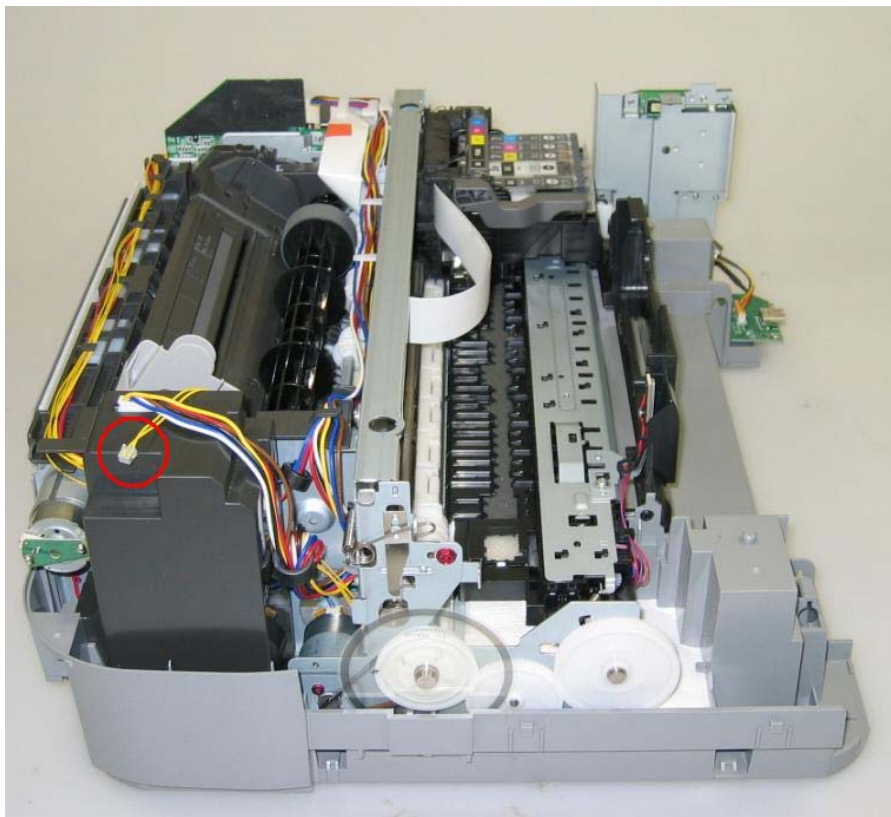
< Status in which the IrDA board, the memory card board and the bottom case unit are removed >



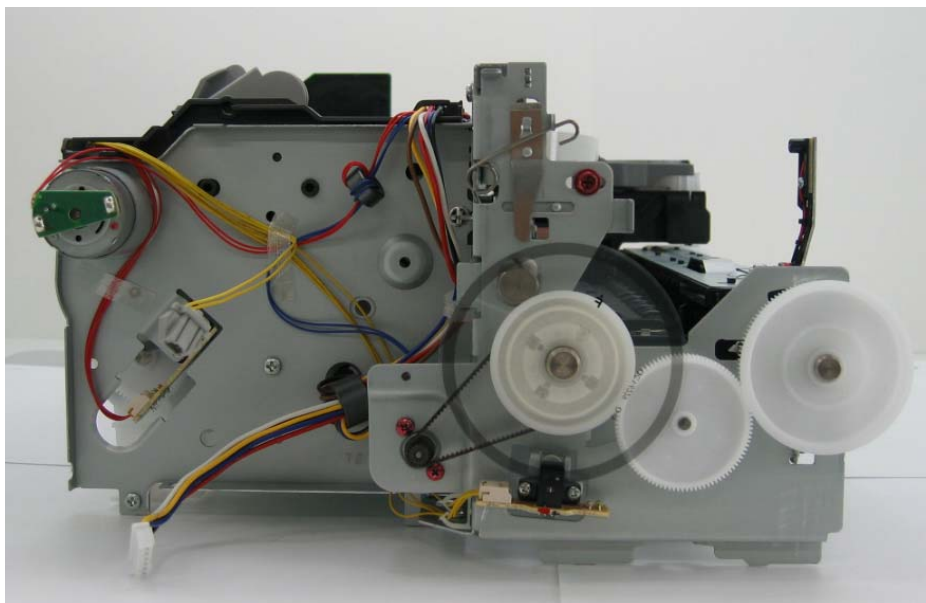
(II) Wiring at the side of the AC adapter and the paper feed motor

< Status in which the bottom case unit and the AC adapter are attached >

(Be cautious of the position of the solenoid relay harness connector in the red circle.)



<Status in which the bottom case unit and the AC adapter are removed >



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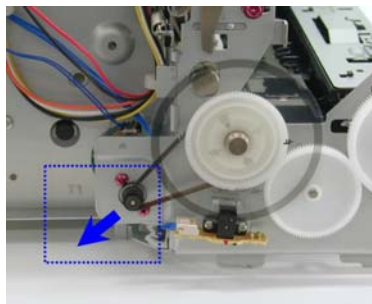
← <Part 1: 3. REPAIR, 3-2> →

3-3. Adjustment / Settings

(1) Paper feed motor adjustment

Perform the following adjustments when the paper feed motor unit is replaced:

- 1) When attaching the motor, fasten the screws so that the belt is properly stretched (in the direction indicated by the blue arrow in the figure below).
- 2) After replacement, be sure to perform the service test print, and confirm that no strange noise or faulty print operation (due to dislocation of the belt or gear, or out-of-phase motor, etc.) occurs.



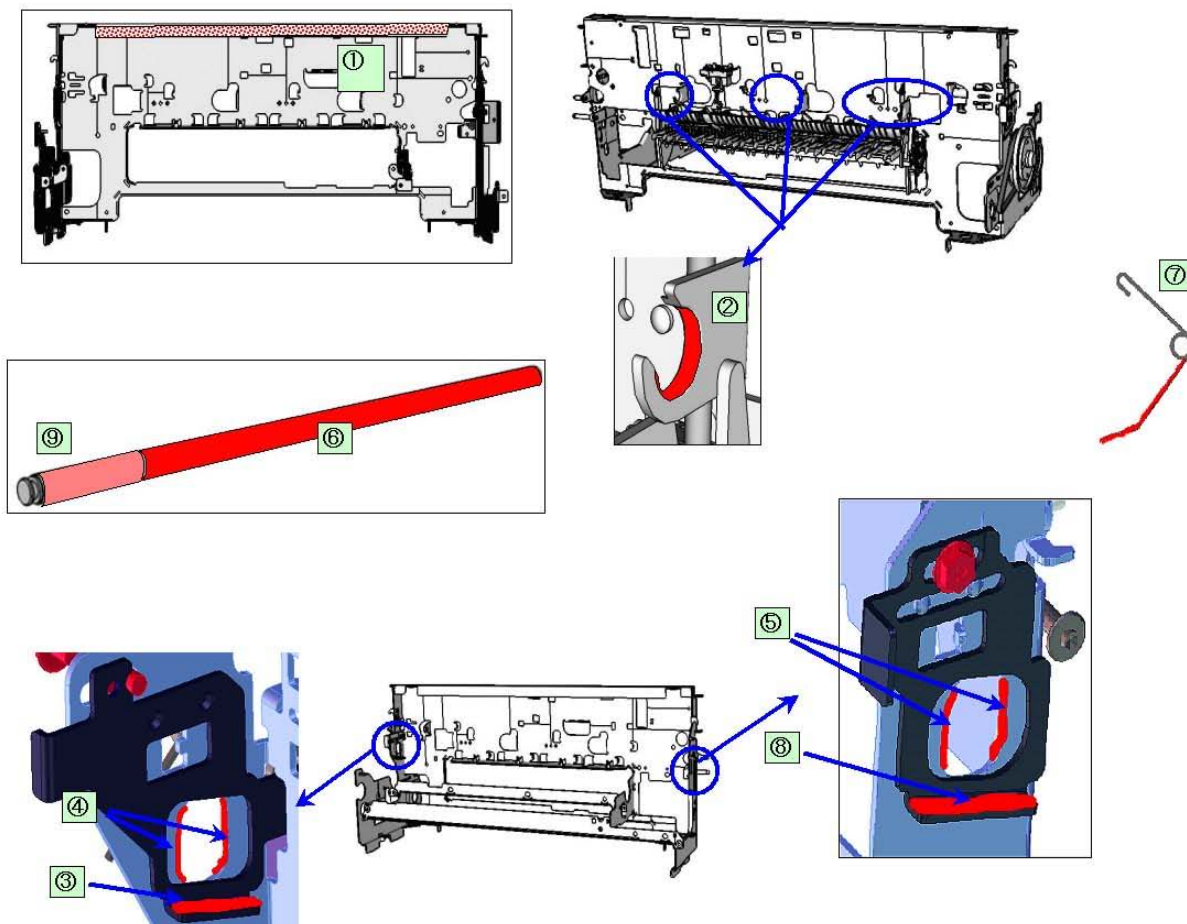
Note: The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit. DO NOT loosen them in other cases.

(2) Grease application

1) Machine unit

No	Part name		Where to apply grease / oil	Grease / oil name	Grease / oil amount	Number of drops*	Number of locations to apply grease / oil
1	Chassis ass'y	①	Entire surface the carriage slider contacts	Floil KG107A	27 to 54 mg	3	1
2	Chassis ass'y	②	PR lift shaft cam contact portion (at 3 locations)	Floil KG107A	9 to 18 mg	1	3
3	Adjust plate L	③	Carriage shaft cam L sliding portion	Floil KG107A	18 to 36 mg	2	1
4	Chassis ass'y	④	Carriage shaft sliding portion on the left side of the chassis (at 2 locations)	Floil KG107A	9 to 18 mg	1	2
5	Chassis ass'y	⑤	Carriage shaft sliding portion on the right side of the chassis (at 2 locations)	Floil KG107A	9 to 18 mg	1	2
6	Carriage shaft	⑥	Entire surface of the carriage shaft where the carriage unit slides	Floil KG107A	200 to 400 mg		1
7	Carriage shaft spring L	⑦	Carriage shaft sliding portion (to the end of the spring)	Floil KG107A	9 to 18 mg	1	1
8	Adjust plate R	⑧	Carriage shaft cam R sliding portion	Floil KG107A	18 to 36 mg	2	1
9	Carriage shaft	⑨	Carriage shaft surface where the carriage slides (and where machine-application of the grease is not feasible)	Floil KG107A	9 to 18 mg	1	1

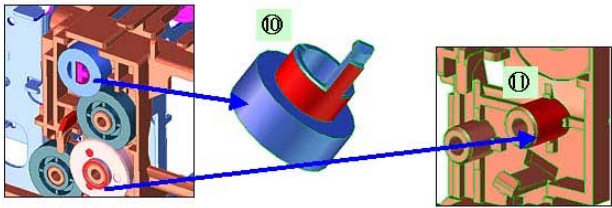
* 1 drop = 9 to 18 mg



2) CL base / CL gear

No	Part name		Where to apply grease / oil	Grease / oil name	Grease / oil amount	Number of drops*	Number of locations to apply grease / oil
10	CL input gear	⑩	Joint of the CL gear base	Floil KG107A	9 to 18 mg	1	1
11	CL gear base	⑪	Outer surface of the CL idler gear cylinder	Floil KG107A	9 to 18 mg	1	1

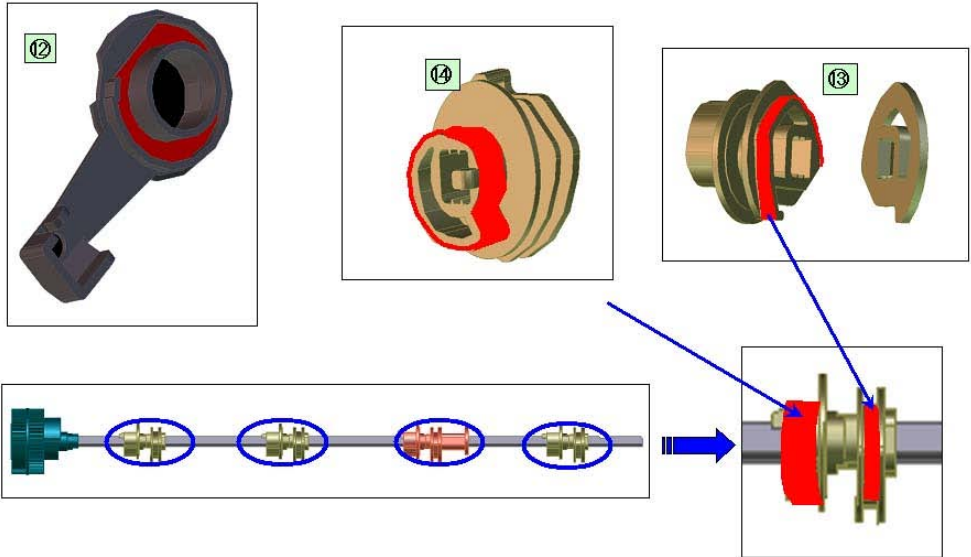
* 1 drop = 9 to 18 mg



3) PR shaft / LF roller bushing

No	Part name		Where to apply grease / oil	Grease / oil name	Grease / oil amount	Number of drops*	Number of locations to apply grease / oil+H18
12	LF roller ass'y	⑫	LF roller bushing L spring contact	Floil KG107A	4.5 to 9 mg	1/2	1
13	PR shaft ass'y	⑬	PR spring sliding portion (at 4 locations)	Floil KG107A	9 to 18 mg	1	4
14	PR shaft ass'y	⑭	PR holder contact (at 4 locations)	Floil KG107A	13.5 to 27 mg	1.5	4

* 1 drop = 9 to 18 mg



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←Part 1: 3. REPAIR, 3-3 (1) to (2)→

(3) Waste ink counter setting

Before replacement of the logic board ass'y, check the waste ink amount. After the logic board ass'y is replaced, set the waste ink amount to the replaced logic board ass'y.

In addition, according to the waste ink amount, replace the waste ink absorber (ink absorber kit). When the waste ink absorber is replaced, reset the waste ink counter (to "0%").

How to check the waste ink amount:

See [3-4. Verification Items](#), [\(1\) Service test print](#), or [\(2\) EEPROM information print](#).

How to set the waste ink amount:

See [3-3. Adjustment / Settings](#), [\(8\) Service mode, "Waste ink amount setting."](#)

(4) White sponge sheet attachment

Position one of the corners of the white sponge sheet at the scanning reference point on the platen glass (back left where the blue lines cross in the photo below). Peel off the cover sheet from the double-sided adhesive tape, and slowly close the document cover with the sponge frame on. The sponge sheet will attach to the sponge frame.



Open the document cover to confirm the following:

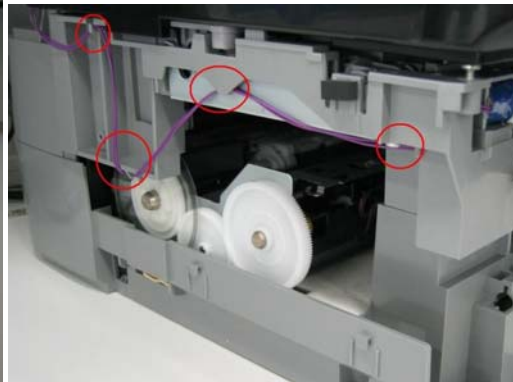
- No extension of the sponge edges over the mold part of the document cover.
- No gap between the platen glass reference edges and the corresponding sponge edges (indicated by the blue lines).

(5) Solenoid position

Position the solenoid so that the solenoid shaft is parallel to the tray lock lever operation axis.

Move the tray lock lever right and left to confirm that the solenoid shaft moves smoothly.

(For cable position, see the photo on the right.)



(6) Front door damper position

Fix the door damper (attached to the front door) into the machine with the protrusion side facing up. Then, fix the right side of the front door in place.

Press the Open button to confirm the front door opens / closes properly.



(7) User mode

On the operation panel, select **Maintenance/settings**, **Device settings**, and a desired function, then press the OK button.

Function	Purpose
Nozzle check	To confirm the print head nozzles eject ink properly. Do the cleaning if necessary.
Cleaning	To unclog the print head nozzles and maintain the print head in a good condition. Use this function when printing is missing or white lines appear on the nozzle check pattern.
Deep cleaning	To improve the print head nozzle conditions when the cleaning is not effective. Since the deep cleaning consumes more ink than the cleaning, use this function only when necessary.
Auto head align (automatic print head alignment)	To improve unsatisfactory print results or dot-misalignment on a line.
Manual head align (manual print head alignment)	To improve unsatisfactory print results or dot-misalignment on a line. Use this function when the automatic print head alignment cannot be done properly, or to align the print head at user's discretion.
Head alignment print	To print the current print head alignment values for confirmation.
Roller cleaning	To solve a paper feed problem. In the roller cleaning, the paper feed rollers rotate while being pressed to the paper lifting plate. Since the rollers will wear, use this function only when necessary.
Bottom plate cleaning	To remove ink attached to the ASF paper path and the platen, using paper.

(8) Service mode

<Service mode operation procedures>

- 1) With the machine power turned off, while pressing the Stop/Reset button, press and hold the ON/OFF button. (DO NOT release the buttons).
- 2) While holding the ON/OFF button, when the COPY button lights in green, release the Stop/Reset button. (DO NOT release the ON/OFF button.)
- 3) While holding the ON/OFF button, press the Stop/Reset button 2 times, and then release both the ON/OFF and Stop/Reset buttons. (Each time the Stop/Reset button is pressed, the Alarm LED and COPY button light alternately, Alarm in orange and COPY in green, starting with Alarm LED.)
- 4) When the COPY button lights in green, press the Stop/Reset button the specified number of time(s) according to the function listed in the table below. (Each time the Stop/Reset button is pressed, the Alarm LED and COPY button light alternately, Alarm in orange and COPY in green, starting with Alarm LED.)

Time(s)	LED indication	Function	Remarks
0 times	Green (COPY)	Power off	The carriage returns and locks in the home position capped.
1 time	Orange (Alarm)	Service test print	See 3-4. Verification Items, (1) Service test print.
2 times	Green (COPY)	EEPROM information print	Set a sheet of A4 or letter size paper. See 3-4. Verification Items, (2) EEPROM information print.
3 times	Orange (Alarm)	EEPROM initialization	The following items are NOT initialized, and the shipment arrival flag is not on: - USB serial number - Destination settings - Waste ink counter

			- CD / DVD correction value - LF correction value
4 times	Green (COPY)	Waste ink counter resetting	Once in the service mode: Press the On/Off button 2x after pressing the Stop button 4x.
5 times	Orange (Alarm)	Destination settings	See 3-3. Adjustment / Settings, (8) Service mode, "Destination settings procedures."
6 times	Green (COPY)	Print head deep cleaning	(Cleaning of both black and color)
7 times	Orange (Alarm)	LF correction	Not used for MP950
8 times	Green (COPY)	CD / DVD check pattern print	Not used in servicing
9 times	Orange (Alarm)	CD / DVD print position correction (horizontal: X direction)	Not used in servicing.
10 times	Green (COPY)	CD / DVD print position correction (vertical: Y direction)	Not used in servicing.
11 times	Orange (Alarm)	Button and LCD test	See 3-3. Adjustment / Settings, (8) Service mode, "Button and LCD test procedures"
12 times	Green (COPY)	Return to the menu selection	
13 times	Orange (Alarm)	Return to the menu selection	
14 times	Green (COPY)	Left margin correction	Not used in servicing.
15 times	Orange (Alarm)	Waste ink amount setting	See 3-3. Adjustment / Settings, (8) Service mode, "Waste ink amount setting procedures"
16 to 21 times	Green at even numbers (COPY) Orange at odd numbers (Alarm)	Return to the menu selection	

Note: - If the Stop/Reset button is pressed 16 or more times, the Alarm LED (orange) or COPY button (green) lights steadily without any changes.
- At the end of the service mode, press the ON/OFF button. The paper lifting plate of the sheet feeder unit will be raised.

<Destination settings procedures>

In the destination settings mode, press the Stop/Reset button the specified number of time(s) according to the destination listed in the table below, and press the ON/OFF button.

Time(s)	LED indication	Destination	CD / DVD print
0 times	Green (COPY)	No change of the destination	
1 time	Orange (Alarm)	Japan	Supported
2 times	Green (COPY)	Korea	Not supported
3 times	Orange (Alarm)	US	Not supported
4 times	Green (COPY)	Europe	Supported
5 times	Orange (Alarm)	Australia	Supported
6 times	Green (COPY)	Asia	Supported
7 times	Orange (Alarm)	China	Supported
8 times	Green (COPY)	Taiwan	Supported
9 times or more	Orange (Alarm)	Return to the menu selection	

Note: After setting the destination without logic board replacement, be sure to initialize the EEPROM (to prevent the Print Beam settings or copy paper settings from being different from the destination settings).

Confirm the model name and destination in service test print or EEPROM information print.

[See 3-4. Verification Items, (1) Service test print, or (2) EEPROM information print.]

<Button and LCD test procedures>

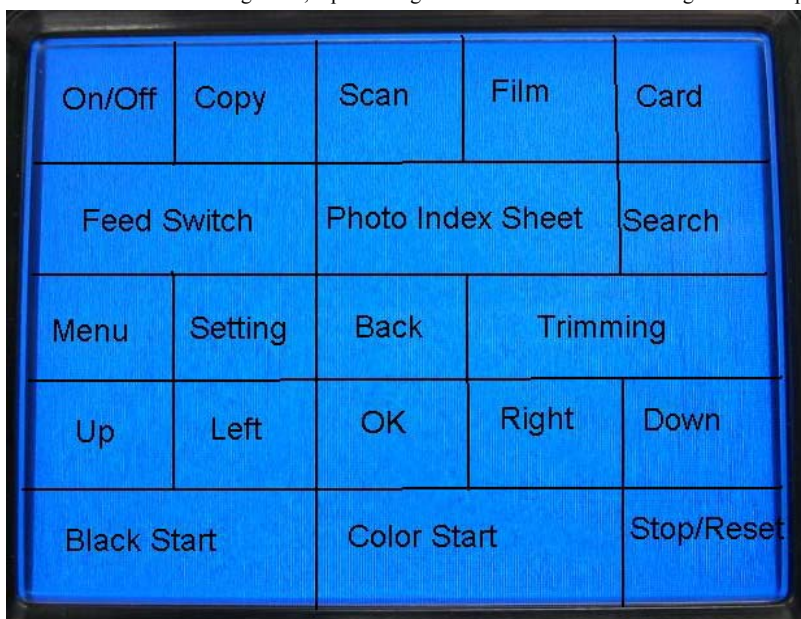
Confirm the operation after replacement of the operation panel unit, logic board, or LCD.

1) In a test mode, press the Stop/Reset button one time. The LCD turns blue, waiting for a button to be pressed.

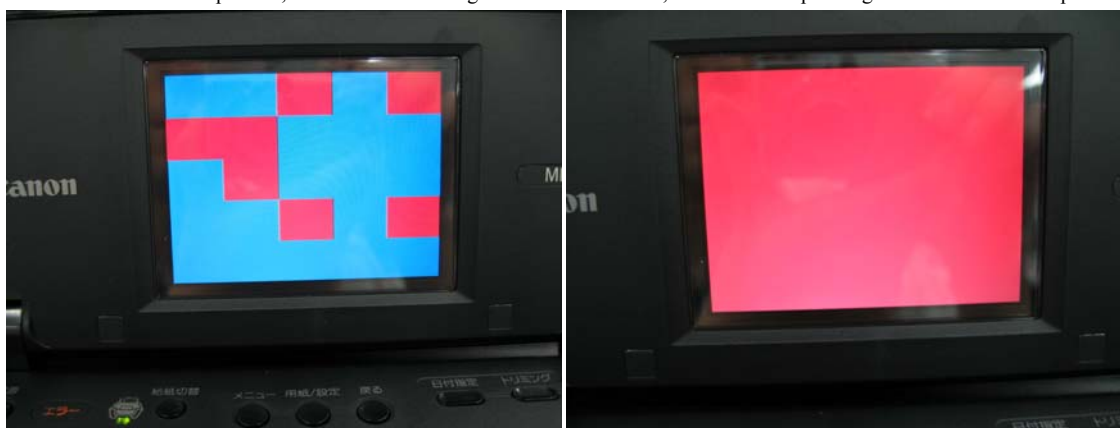


2) Press each button on the operation panel.

The LCD is divided into segments, representing each button. The color of a segment corresponding to the pressed button changes to red.



3) When all the buttons are pressed, the entire LCD changes to a full red screen, and no further pressing of the buttons is accepted.



4) Open the scanning unit (printer cover) to display the color pattern. Only the ON/OFF button is enabled.



- 5) Press the ON/OFF button to complete a button and LCD test and to return to the service mode menu selection.



<Waste ink amount setting procedures>

Set the waste ink amount data to a replaced new EEPROM after the logic board is replaced in servicing.

- 1) Before replacement of the logic board ass'y, check the waste ink amount in EEPROM information print. [\[See 3-4. Verification Items, \(2\) EEPROM information print.\]](#)
- 2) In the waste ink amount setting mode, press the Stop/Reset button the specified number of time(s) according to the waste ink absorber whose value should be transferred to the replaced new EEPROM. (Only the main waste ink absorber for the MP950)

Time(s)	Waste ink absorber	Remarks
0 times	Main waste ink absorber	
1 time	Platen waste ink absorber	Not valid for the MP950
2 times	Both the main and platen waste ink absorbers	Only the main waste ink absorber is valid for the MP950
3 times or more	Not valid	Press the ON/OFF button to return to the waste ink amount setting mode.

- 3) Press the ON/OFF button to proceed to the next step.
- 4) The waste ink amount can be set in 10% increments by pressing the Stop/Reset button. Press the Stop/Reset button the appropriate number of time(s) to select the value which is closest to the actual waste ink amount.

Time(s)	Waste ink amount value to be set (%)
0 times	0%
1 time	10%
2 times	20%
3 times	30%
4 times	40%

5 times	50%
6 times	60%
7 times	70%
8 times	80%
9 times	90%
10 times or more	Not valid. Press the ON/OFF button to return to the waste ink amount setting mode.

- 5) Press the ON/OFF button to set the selected value to the EEPROM. Print EEPROM information to confirm that the value is properly set to the EEPROM.

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← <Part 1: 3. REPAIR, 3-3 (3) to (8)> →

3-4. Verification Items

(1) Service test print

<EEPROM information contents>

On the service test print (sample below), confirm the EEPROM information as shown below. (The information is given in the upper portion of the printout.)

MP950: Model name

JPN: Destination

M: Main firmware version

C: Card reader firmware version

USB (xxxxxx): USB serial number

FA = xx xx xx: Reserved for plant use

D = xxx.x: Waste ink amount (%)

CDR (+xxxxx, +yyyyy): CD / DVD sensor position correction value

LF: LF correction value (not used for MP950: * mark appears on the test print)

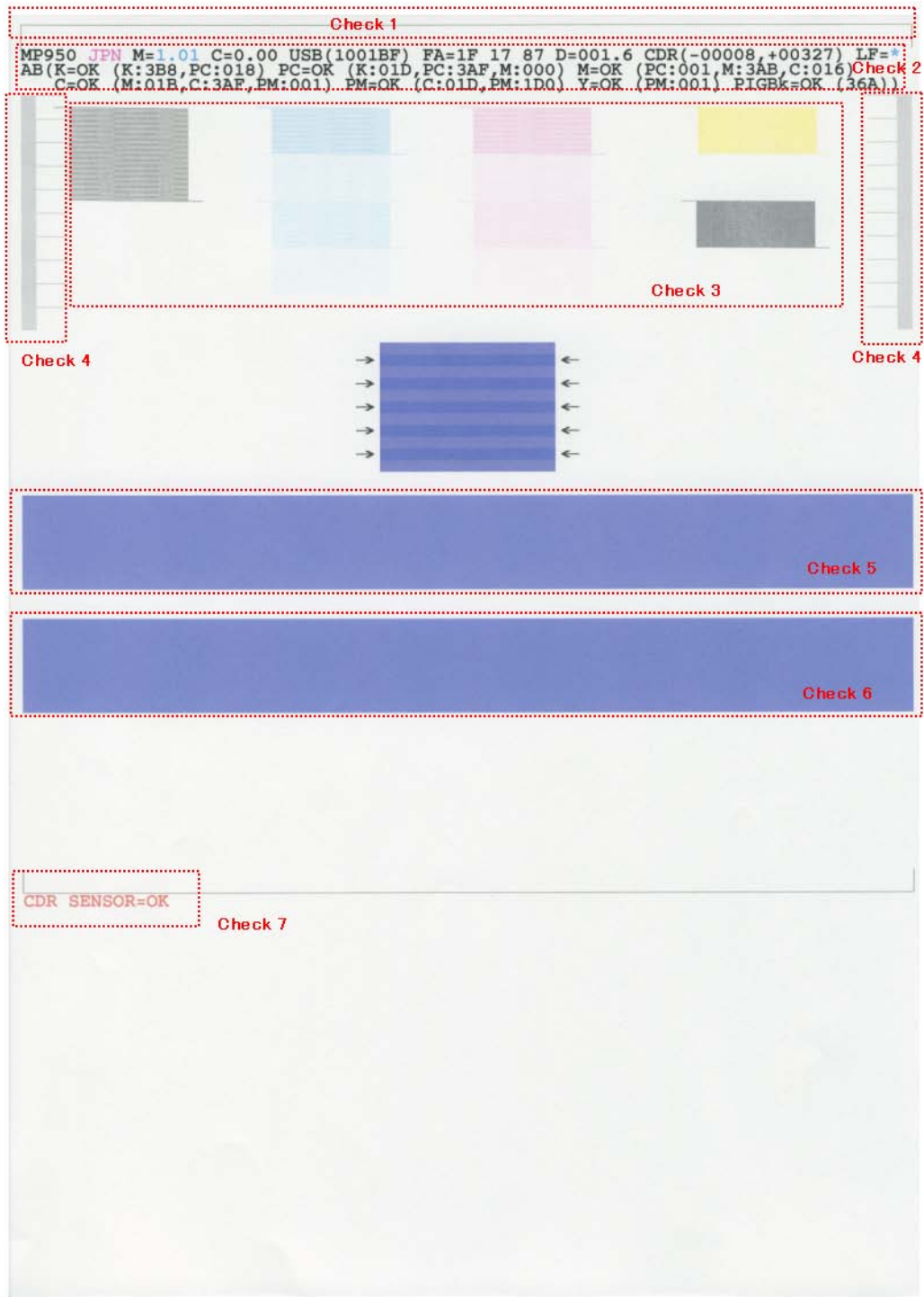
AB (K = OK Y = ...): Ink system check result

<Print check items>

On the service test print (sample below), confirm the following items:

- Check 1, top of form accuracy: The lines shall not extend off the paper.
- Check 2, EEPROM information
- Check 3, nozzle check pattern: Ink shall be ejected from all nozzles.
- Check 4, check pattern for irregular line feeding: There shall be no remarkable streaks or unevenness.
- Check 5, check pattern for uneven printing due to carriage movement (9600 dpi mode): There shall be no remarkable unevenness.
- Check 6, check pattern for uneven printing due to carriage movement (standard mode): There shall be no remarkable unevenness.
- Check 7, CD / DVD sensor and automatic print head alignment sensor correction: The results shall be OK.

<Service test print sample>



(2) EEPROM information print

<How to read EEPROM information print>

Print sample:

MP950 JPN V1.04 IF(USB2=1) D=004.5 ST=2005/06/10-18:30

ER(ER0=1000 ER1=5100) LPT=2005/06/28-09:09

PC(M=002 R=000 T=001 D=009 C=009)

CLT(BK=2005/06/28-18:30 CL=2005/06/28-18:30)

CH=00001 CT(PBK=040 PC=002 BK=020 M=109 C=012 PM=113 Y=014) IS(PBK=1 PC=1 BK=0 M=0 C=1 PM=1 Y=2)

P_ON(S=00009) A_REG=1 M_REG=0

UR(A(BKoe)=000 B(C-SC)=000 C(M-SM)=000 D(PC-SPC)=000 E(PM-SPM)=000 F(PBKoe)=000 G(CLbi)=000

H(BK-CL)=000 I(SCLbi)=000 J(BKbiPP)=000 K(CLbiPP)=000 L(SCLbiPP)=000 M(NZedge)=000

WP=0024 CDIN(LG=001 PB=000 OPB=000) BTIN=0 MSD(015)

TPAGE=00047 (TTL=00047COPY=00025)

PAGE(All=00038 PP=00035 HR+MP=00003 PR+SP+SG =00000 GP =00000 PC=00000 EV=00000)

UCPAGE(All=00083 PP=00035 HR+MP=00003 PR+SP+SG =00000 GP =00000 PC=00000 EV=00000)

BPPAGE(All=00083 BSSP=00003 PC=00000)

CDPAGE(All=000) EDGE=00083 L=00000 BTPAGE=0000 CDR=00000

CDRP=(-00005,-00029) CDRS=(000) LF=0 LM=(ASF_R:00 UT_F:00 UT_R:00)

<Direct>

LG=01 Japanese SC=000 PrnB=000 Seal=000 CDI=004 CDP=006

CDD-PR(L=003 2L=002 PC=000 A4=000) CDD-SP(L=003 2L=002 PC=000 A4=000)

CDD-MP(L=003 2L=002 PC=000 A4=000) DCD-PP(L=003 2L=002 PC=000 A4=000)

DCD-FPP(L=003 2L=002 PC=000 A4=000) DCD-MPP(L=003 2L=002 PC=000 A4=000)

<Scanner>

SC=00026 SC-dpi(100=00000 200=00000 400=00001 800=00025 1600=00000 3200=00000 6400=00000)

SG(GY=00000 CL=00000) FSC=00003

<Copy>

MCASF(PP=00001 SP+PR+GP=00000 OTH=00000)

MCUF(PP=00001 SP+PR+GP=00000 OTH=00000)

CCASF(PP=00009 FR+MP=00000 PR+SP+SG=00006 GP=00000 PC=00000)

CCUT(PP=00004 FR+MP=00000 PR+SP+SG=00003 GP=00001 PC=00001)

Head TempBK=31.5 Head TempC=29.0 Env Temp=27.0 FF(80 00 17)

HDEEPROM

V0000 SN=0000-033C

LN(00000 00000 00001 00003 00001 00017 00015) ID=09

IL=(PBK=000 PC=000 PC2=000 BK=000 M=001 M2=001 C=001 C2=000 PM=000 PM2=000 Y=001)

<SCAN ERROR HISTORY>

5020 0000

Printed items:

1. Model name 2. ROM version 3. Connected I/F (USB2) 4. Waste ink amount 5. Installation date
 6. Operator call/service call error record 7. Last printing time
 8. Purging count (manual/deep cleaning/timer/dot count/ink tank replacement) 9. Cleaning time (BK/CL)
 10. Print head replacement count 11. Ink tank replacement count (PBK/BK/Y/M/C) 12. Ink status (PBK/BK/Y/M/C)
 13. Power-on count (soft) 14. Automatic print head alignment by user 15. Manual print head alignment by user
 16. User print head alignment values 17. Wiping count 18. Camera Direct Print-supported device connection record 19. Bluetooth-supported device connection record
 20. Longest period where printing stops 21. Total print pages (total, copy pages)
 22. ASF feed pages (total, plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard, Envelope)
 23. U-turn cassette feed pages (total, plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard, envelope)
 24. Auto duplex print pages (total, Photo Paper Plus Double Sided, postcard)
 25. Camera Direct print pages (total) 26. Borderless print pages (total) 27. 4x6 print pages 28. Print pages via Bluetooth communication 29. Number of CDs and DVDs printed
 30. CD / DVD print position adjustment value 31. CD / DVD sensor correction value 32. LF correction 33. Left margin correction value (ASF back side, U-turn front side, U-turn back side)

<Direct>

34. Language 35. Business card & Credit card sized paper pages fed 36. Print Beam feed pages 37. Sticker sheets fed
 38. Memory card use count 39. Total Card Direct print pages
 40. Card Direct print pages: Photo Paper Pro (4 x 6, 5 x 7, Japanese post card, A4/Letter)
 41. Card Direct print pages: Photo Paper Plus Glossy (4 x 6, 5 x 7, Japanese post card, A4/Letter)
 42. Card Direct print pages: Matte Photo Paper (4 x 6, 5 x 7, Japanese post card, A4/Letter)
 43. Camera Direct print pages: Photo Paper (4 x 6, 5 x 7, Japanese post card, A4/Letter)
 44. Camera Direct print pages: Photo Paper Plus Glossy (4 x 6, 5 x 7, Japanese post card, A4/Letter)
 45. Camera Direct print pages: Matte Photo Paper (4 x 6, 5 x 7, Japanese post card, A4/Letter)

<Scanner>

46. Total scan count 47. Scan count by scanning resolution (100dpi/200dpi/400dpi/800dpi/1600dpi/3200dpi/6400dpi)
 48. Scan count by scanning gradation (grayscale, color)
 49. Film scan count

<Copy>

50. Monochrome copy pages fed via the ASF (plain paper, High Resolution Paper & Matte Photo Paper & Glossy Photo Paper, other)
 51. Monochrome copy pages fed via the U-turn cassette (plain paper, High Resolution Paper & Matte Photo Paper & Glossy Photo Paper, other)
 52. Color copy pages fed via the ASF (plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard)
 53. Color copy pages fed via the U-turn cassette (plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard)
 54. Print head temperature (BK/CL) 55. Inside temperature 56. Line inspection information

HDEEPROM

57. Version 58. Serial number
 59. Lot number 60. Print head ID
 61. Ink ejection level (PBK,PC,PC2,BK,M,M2,C,C2,PM,PM2,Y)

<Scan error history>

62. The last 2 errors

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 <Part 1: 3. REPAIR, 3-4> 

4. MACHINE TRANSPORTATION

This section describes the procedures for transporting the machine for returning after repair, etc.

- 1) In the service mode, press the ON/OFF button to finish the mode, and confirm that the paper lifting plate of the sheet feed unit is raised.
- 2) Keep the print head and ink tanks installed in the carriage.
[See Caution 1 below.]
- 3) Turn off the machine to securely lock the carriage in the home position. (When the machine is turned off, the carriage is automatically locked in place.)
[See Caution 2 below.]
- 4) Slide the scanner lock switch to lock the scanner.



Caution:

- (1) If the print head is removed from the machine and left alone by itself, ink (the pigment-based black ink in particular) is likely to dry. For this reason, keep the print head installed in the machine even during transportation.
- (2) Securely lock the carriage in the home position, to prevent the carriage from moving and applying stress to the carriage flexible cable, or causing ink leakage, during transportation.

Memo:

If the print head must be removed from the machine and transported alone, attach the protective cap (used when the packing was opened) to the print head (to protect the print head face from damage due to shocks).

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← <Part 1: 4. MACHINE TRANSPORTATION> →

Part 2

TECHNICAL REFERENCE



1. NEW TECHNOLOGIES

(1) New ink tank system (PGI-5, CLI-8)

An LED is installed in each ink tank.

By the LED indication, wrong installation of the ink tanks will be prevented, and the remaining ink level can be visually recognized with the ink tanks seated in the carriage.

The combination of the new pigment-based black ink with higher resistance against bleeding or marker pens and the new dye-based inks with higher photo quality and weather resistance makes the new ink system strong in both photo and text printing.

(2) Super-photo quality printing

By the FINE technologies, 1 pl of ultra-fine ink droplet is adopted. The MP950 provides excellent super-photo print quality without graininess at the maximum resolution of 9,600 dpi x 2,400 dpi^{*1}, which offers a photo quality with richer gradation.

*1: Printing at the minimum distance of 1/9600 inch between the dots.

(3) High-speed print and copy

Approx. 46 sec. in 4 x 6 borderless printing (standard mode, Photo Paper Plus Glossy, full page, SCID No.2)

For reference, 29 ppm in monochrome printing and 22 ppm in color printing at the highest print speed.

(4) New functionality in copy and Direct Printing

- Plain paper is now usable in Camera Direct Printing from a digital camera or digital video camera, if both support PictBridge. (Settings button)
- File numbers, shooting date, and shooting data (Exif) can be printed on the images. (Memory card mode)
- Optimization of photos taken by a mobile phone:
Minimizes jaggies in printing a low-resolution photo taken by a mobile phone. (Wireless print settings menu, or memory card mode)
- Slide show:
To the Single-photo print menu, the slide show function has been added to display photos from the memory card one by one automatically. (Memory card mode)
- Red-Eye correction:
Selects red area from an image, and detects and corrects the red eye automatically. (Memory card mode)
- Face brightener:
Perceives a person's face automatically and adjusts its brightness. (Memory card mode, or photo/film mode)
- Index printing:
Printing like a 35 mm negative film is possible. (Memory card mode)
- Sepia tone or illustration-simulated effects:
In Card Direct printing, the function to add a sepia tone to the photo or to make the photo look like a illustration has been added. (Memory card mode)
- CD / DVD printing:
Direct printing from a memory card on a CD or DVD is available. (Memory card mode)
- CD / DVD label copy:
A CD or DVD label can be copied directly to another CD or DVD. (Copy mode)
- 4-on-1 copy:
Four documents can be copied on a single sheet by automatically reducing the original documents. (Copy mode)

(5) New design

Offers luxury-looking and robustness which match an interior by hiding the operation panel.

(6) High-definition 3.6 color TFT color LCD

- The 3.6-inch TFT color LCD offers higher visibility and high-speed display.
- Improves usability (320 x 240 pixels, approx. 65,000 colors).

(7) 3,200 x 6,400 dpi high-resolution CCD scanner and FAU supported

- High-definition film scanning of color negative film, black and white negative film, color positive film, and mount film is

possible using FAU (Film Adapter Unit).

- Continuous scanning is possible up to 12 frames from a sleeve, and 8 frames as a slide.

(8) Printing via Bluetooth communication

Attachment of the optional Bluetooth unit enables wireless printing from a Bluetooth-compliant computer or mobile phone.

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2. CLEANING MODE AND AMOUNT OF INK PURGED

To prevent printing problems due to bubbles, dust, or ink clogging, print head cleaning is performed before the start of printing (when the cleaning flag is on), except in the following cases:

- Cleaning on arrival: Performed when the scanning unit (printer cover) is closed.
- Manual cleaning / deep cleaning: Performed manually.

<Cleaning mode list>

Black: Pigment-based black

Color: Dye-based black, cyan, magenta, yellow, photo cyan, photo magenta

Condition	Details	Amount of ink used (g) (in the normal temperature/humidity environment)	Est. required time (sec.) (not including the time of opening the caps)
On arrival of the machine (All in sequence)	First to third cleaning after shipped from the plant*1.	0.53 (Black) 1.16 (Color)	100
Dot count cleaning (Black)	When the specified number of dots are printed since the previous Black cleaning.	0.20 (Black)	35 (Black)
Timer cleaning - 0*2 (Black only)	If 24 to 60 hours have elapsed since the previous Black cleaning till the start of the next printing.	0.20 (Black)	35 (Black)
Timer cleaning - 1 (Black only)	If 60 to 96 hours have elapsed since the previous Black cleaning till the start of the next printing.		
Timer cleaning - 2 (Black only)	If 96 to 120 hours have elapsed since the previous Black cleaning till the start of the next printing.		
Timer cleaning - 3*3 (Black/Color)	If 120 to 336 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	0.20 (Black) 0.50 (Color)	35 (Black) 45 (Color)
Timer cleaning - 4 (All in sequence)	If 336 to 504 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	0.57 (Black) 1.00 (Color)	80
Timer cleaning - 5 (All in sequence)	If 504 to 720 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.		80
Timer cleaning - 6 (All in sequence)	If 720 to 1,080 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.		80
Timer cleaning - 7 (All in sequence)	If 1,080 to 2,160 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	1.27 (Black) 1.00 (Color)	85
Timer cleaning - 8 (All in sequence)	If 2,160 to 4,320 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	1.95 (Black) 1.00 (Color)	90
Timer cleaning - 9 (All in sequence)	If 4,320 to 8,640 hours have elapsed since the previous Black/Color cleaning till the start of the next printing.	1.95 (Black) 1.00 (Color)	90
Timer cleaning - 10 (All in sequence)	If 8,640 or longer hours have elapsed since the previous Black/Color cleaning till the start of the next printing.		90
At print head replacement	When the print head is removed and installed.	0.53 (Black) 1.16 (Color)	100

(All in sequence)			
At ink tank replacement*4 (Black/Color/All in sequence)	When an ink tank is replaced (without the print head removal or re-installation)	0.38 (Black) 1.00 (Color)	80 (All in sequence) 40 (Black) 60 (Color)
Manual cleaning (Black/Color/All at the same time)	- Via the operation panel (All at the same time only) - Via the MP driver (Selectable from Black, Color, or All at the same time)	0.20 (Black) 0.50 (Color)	45 (All at the same time) 35 (Black) 45 (Color)
Deep cleaning (Black/Color/All at the same time)	Via the MP driver (Selectable from Black, Color, or All at the same time)	1.95 (Black) 1.00 (Color)	90 (All at the same time) 50 (Black) 60 (Color)
If the print head has not been capped before power-on (All in sequence)		0.38 (Black) 1.00 (Color)	80 (All in sequence)

*1: The counter for the on-arrival cleaning is checked at opening and closing of the scanning unit (the first opening and closing only), before start of printing, at dot-count cleaning (at paper ejection), and at manual cleaning, and the on-arrival cleaning is performed according to the counter value. After each on-arrival cleaning, the counter value is reduced by 1.

When the counter value is 3, 2, or 1: On-arrival cleaning is performed.

When the counter value is 0: On-arrival cleaning is not performed.

*2: When 24 to 60 hours have elapsed since the previous Black cleaning, timer cleaning - 0 is performed. However, this cleaning will be conducted up to 5 times from the printer installation, and no further timer cleaning - 0 will be performed.

*3: The period of time since the previous cleaning is counted by Black and Color separately. For this reason, the cleaning mode may differ according to Black or Color.

*4: When only the black ink tank is replaced, Black cleaning is performed. One of the color ink tanks is replaced, Color cleaning is performed. Both the black and color ink tanks are replaced, All-at-the-same-time cleaning is performed.

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3. PRINT MODE

	Default setting
	Selectable in the printer driver Main tab
	Selectable after clicking Custom in the Main tab

Ink used	PigBk	PGI-5BK
	C	CLI-8C
	M	CLI-8M
	Y	CLI-8Y
	k	CLI-8BK
	PC	CLI-8PC
	PM	CLI-8PM

3-1. Normal Color Printing via Computer

MP driver Custom setting		5 Fast	4	3	2	1 Fine
Paper type	Print Quality Resolution HxV(dpi) Print control Ink used	Custom 300x300 1 pass, Bi-directional PigBk/C/M/Y	Fast 300x300 1 pass, Bi-directional PigBk/C/M/Y	Standard 600x1200 (*1) PigBk/C/M/Y	High 600x2400 6 passes, Bi-directional PigBk/C/M/Y/c/m	
Plain Paper						
Photo Paper Pro (PR-101) *Glay scale: ON	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 1200x1200 8 passes, Uni-directional C/M/Y/k	High 1200x1200 12 passes, Uni-directional C/M/Y/k	Custom 1200x1200 16 passes, Uni-directional C/M/Y/k
Photo Paper Pro (PR-101) *Glay scale: OFF	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	Custom 9600x2400 16 passes, Bi-directional C/M/Y/PC/PM/k
Photo Paper Plus Glossy (PP-101/SG-101) *Glay scale: ON	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 1200x1200 8 passes, Uni-directional C/M/Y/k	High 1200x1200 12 passes, Uni-directional C/M/Y/k	
Photo Paper Plus Glossy (PP-101/SG-101) *Glay scale: OFF	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
Photo Paper Plus Glossy Double Sided (PP-101D)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
Matte Photo Paper (MP-101)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k	
Glossy Photo Paper (GP-401/EC-101)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
High Resolution Paper (HR-101)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k	
Envelope	Print Quality Resolution HxV(dpi) Print control Ink used			Fast 600x1200 (*1) PigBk/C/M/Y/k	Standard 600x1200 6 passes, Bi-directional PigBk/C/M/Y/k	High 600x1200 8 passes, Bi-directional PigBk/C/M/Y/k
Fine Art Paper (FA-PR1) *Glay scale: ON	Print Quality Resolution HxV(dpi) Print control Ink used				High 1200x1200 12 passes, Uni-directional C/M/Y/PC/PM/k	
Fine Art Paper (FA-PR1) *Glay scale: OFF	Print Quality Resolution HxV(dpi) Print control Ink used				High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
Other Fine Art Paper *Glay scale: ON	Print Quality Resolution HxV(dpi) Print control Ink used				High 1200x1200 12 passes, Uni-directional C/M/Y/PC/PM/k	
Other Fine Art Paper *Glay scale: OFF	Print Quality Resolution HxV(dpi) Print control Ink used				High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
T-Shirt Transfers (TR-301)	Print Quality Resolution HxV(dpi) Print control Ink used			High 600x1200 6 passes, Bi-directional C/M/Y/k		
Transparencies (CF-102)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional PigBk/C/M/Y/k	High 600x1200 8 passes, Bi-directional PigBk/C/M/Y/k	
Other Photo Paper	Print Quality Resolution HxV(dpi) Print control Ink used				Standard 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	

(*1) PigBk: 1 pass-Uni, Color: 2 pass-Bi

3-2. Normal Grayscale Printing via Computer

MP driver Custom setting		5 Fast	4	3	2	1 Fine
Paper type	Print Quality Resolution HxV(dpi) Print control Ink used	Custom 300x300 1 pass, Bi-directional PigBk	Fast 300x300 1 pass, Bi-directional PigBk	Standard 600x600 1 pass, Bi-directional PigBk	High 600x600 4 passes, Bi-directional PigBk	
Envelope	Print Quality Resolution HxV(dpi) Print control Ink used			Fast 600x600 2 passes, Uni-directional PigBk	Standard 600x600 4 passes, Uni-directional PigBk	High 600x600 6 passes, Uni-directional PigBk

3-3. Borderless Printing via Computer

MP driver Custom setting		5 Fast	4	3	2	1 Fine
Paper type	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 C/M/Y/k		
Plain Paper						
Photo Paper Pro (PR-101) *Glay scale: ON	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 1200x1200 8 passes, Uni-directional C/M/Y/k	High 1200x1200 12 passes, Uni-directional C/M/Y/k	Custom 1200x1200 16 passes, Uni-directional C/M/Y/k
Photo Paper Pro (PR-101) *Glay scale: OFF	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	Custom 9600x2400 16 passes, Bi-directional C/M/Y/PC/PM/k
Photo Paper Plus Glossy (PP-101/SG-101) *Glay scale: ON	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 1200x1200 8 passes, Uni-directional C/M/Y/k	High 1200x1200 12 passes, Uni-directional C/M/Y/k	
Photo Paper Plus Glossy (PP-101/SG-101) *Glay scale: OFF	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
Glossy Photo Paper (GP-401/EC-101)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	
Matte Photo Paper (MP-101)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k	
Other Photo paper	Print Quality Resolution HxV(dpi) Print control Ink used				Standard 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	

3-4. Duplex Printing via Computer

MP driver Custom setting		5 Fast	4	3	2	1 Fine
Paper type	Print Quality Resolution HxV(dpi) Print control Ink used	Custom 300x300 1 pass, Bi-directional PigBk/C/M/Y	Fast 300x300 1 pass, Bi-directional PigBk/C/M/Y	Standard 600x1200 (*2) PigBk/C/M/Y	High 600x2400 6 passes, Bi-directional PigBk/C/M/Y/c/m	
Plain Paper						
* Borderless Printing	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 2 passes, Bi-directional C/M/Y/k		
Photo Paper Plus Glossy Double Sided (PP-101D)	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k	

(*2) PigBk: 1 pass-Uni, Color: 2 pass-Bi

3-5. Camera Direct Printing

MP driver Custom setting		5 Fast	4	3	2	1 Fine	Camera Direct
Paper type	Print Quality Resolution HxV(dpi) Print control Ink used						
Plain Paper(*1) (*1) Camera Direct							600x1200 6 passes, Bi-directional PigBk/C/M/Y
Photo Paper Pro (PR-101)	Print Quality Resolution HxV(dpi) Print control Ink used				600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k		
Photo Paper Plus Glossy (PP-101/SG-101)	Print Quality Resolution HxV(dpi) Print control Ink used				600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k		

3-6. Card Direct / Photo Direct / Wireless Printing

Print quality in wireless printing is fixed to Standard.

(Selectable paper types in wireless printing: Plain paper, Photo Paper Pro, Photo Paper Plus Glossy, Matte Photo Paper, and Glossy Photo Paper)

MP driver Custom		5	4	3	2	1	Special Mode
setting		Fast				Fine	
Plain Paper	Print Quality Resolution HxV(dpi) Print control Ink used				Standard 600x2400 6 passes, Bi-directional PigBk/C/M/Y/c/m		High 600x2400 8 passes, Bi-directional PigBk/C/M/Y/c/m
Glossy Photo Paper	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k		
Photo Paper Pro	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k		
Matte Photo Paper	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k		
Photo Paper Plus Glossy	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k		

3-7. Copying

MP driver Custom		5	4	3	2	1	Special Mode
setting		Fast				Fine	
Plain Paper	Print Quality Resolution HxV(dpi) Print control Ink used	Fast 300x300 1 pass, Bi-directional PigBk		Standard 600x600 1 pass, Bi-directional PigBk	High 600x600 4 passes, Bi-directional PigBk		
Single Sided Black	Print Quality Resolution HxV(dpi) Print control Ink used	Fast 300x300 1 pass, Bi-directional PigBk/C/M/Y		Standard 600x1200 *1 PigBk/C/M/Y	High 600x2400 6 passes, Bi-directional PigBk/C/M/Y/c/m		
Glossy Photo Paper	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k		
Single Sided Black & Color	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k		High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k
Photo Paper Pro	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k			High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k
Single Sided Black & Color	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k		
Matte Photo Paper	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k		
Single Sided Black & Color	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x1200 6 passes, Bi-directional C/M/Y/PC/PM/k	High 600x1200 8 passes, Bi-directional C/M/Y/PC/PM/k		
Photo Paper Plus Glossy	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k			High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k
Single Sided Black & Color	Print Quality Resolution HxV(dpi) Print control Ink used			Standard 600x2400 6 passes, Bi-directional C/M/Y/PC/PM/k			High 600x2400 8 passes, Bi-directional C/M/Y/PC/PM/k
Plain Paper	Print Quality Resolution HxV(dpi) Print control Ink used	Fast 300x300 1 pass, Bi-directional PigBk/C/M/Y		Standard 600x1200 *1 PigBk/C/M/Y	High 600x2400 4 passes, Bi-directional PigBk/C/M/Y/c/m		
Double Sided Black & Color & Photo	Print Quality Resolution HxV(dpi) Print control Ink used						

*1: Pig-BK:1pass-Uni, Color: 2pass-Bi

4. SCANNING

Scan mode				Zoom (%)	CCD Sensor Type (800 or 3200dpi)	Hardware Resolution		Output resolution (dpi)
						CCD (dpi)	Motor (dpi)	
COPY	Direct / Memory	Mono	FAST	25	800	400	200	300×300
				26-66			200	
				67-133			400	
				134-266			1200	
				267-400			2400	
			STANDARD	25	800	400	200	600×600
				26-66			400	
				67-133			400	
				134-266			1600	
				267-400			3200	
			HIGH	25	800	800	200	600×600
				26-50			400	
				51-100			800	
				101-200			1600	
				201-400			3200	
		Color	FAST	25	800	400	200	300×300
				26-66			200	
				67-133			400	
				134-266			1200	
				267-400			3200	
			STANDARD	25	800	800	200	600×600
				26-50			400	
				51-100			800	
				101-200			1600	
				201-400			3200	
			HIGH	25	800	800	200	600×600
				26-50			400	
				51-100			800	
				101-200			1600	
				201-400			3200	
COPY (Printed Photo)	Memory	Pre Scan			800	400	200	100×100
		Mono	FAST		800	400	400	300×300
			STANDARD					600×600
			HIGH					
		Color	FAST		800	400	400	300×300
			STANDARD					600×600
HIGH								
COPY (Film)	Memory	Pre Scan			3200	800	200	200×200
		Mono	< 2L size		3200	1600	1600	600×600
			>= 2L size					
			Color nega Other films					
		Color	< 2L size		3200	1600	1600	600×600
			>= 2L size					
Color nega Other films								

SCAN	Pre Scan		100dpi	800	400	200	100×100	
	USB2.0/USB1.1 Color/Gray	100		800	400	200	100×100	
		~200				200	200×200	
		~400				400	400×400	
		~800				800	800×800	
		~1600				1600	1600×1600	
		~3200		3200	3200	3200×3200		
		~6400			6400	3200×6400		
		200dpi			3200	800	200	200×200
		SCAN(Film)	USB2.0/USB1.1 Color/Gray	200		3200	800	200
~400				200	200×200			
~800				400	400×400			
~1600				800	800×800			
~3200				1600	1600×1600			
~6400				3200	3200		3200×3200	
					6400		3200×6400	

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[←Part 2: 3. PRINT MODE→](#)

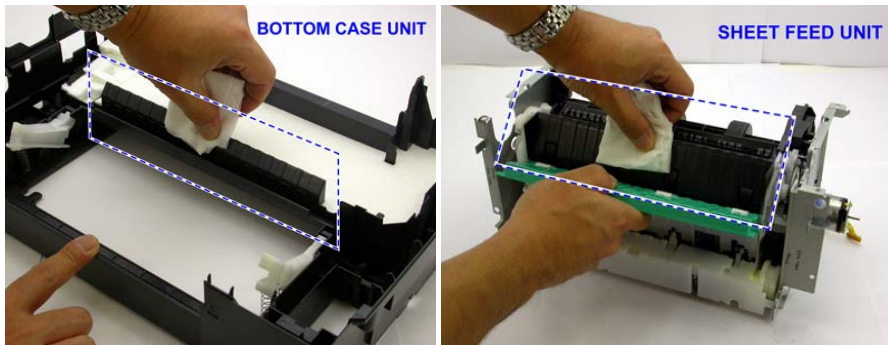
5. FAQ (Problems Specific to the MP950 and Corrective Actions)

No.	*	Function	Phenomenon	Condition	Cause	Corrective action	Possible call or complaint
1	B	Print results	Skewed paper feeding	- Paper feeding from the cassette, Photo Paper Plus Double Sided, 5 x 7 size	Due to its mechanism, contact of the PF pinch rollers to the 5 x 7 size paper is uneven, which is likely to cause skewed paper feeding.	Change the paper feeding method from the cassette to the auto sheet feeder.	- Paper feeds at an angle. - A margin appears on printouts.
2	B	Paper feed	Improper paper feeding: - Multi-feeding - Skewed paper feeding - Paper jam	- Paper feeding from the ASF - Plain paper - Highest print speed (Custom setting to 5) - In the high temperature and high humidity environment - In the low temperature and low humidity environment - With the maximum amount of paper set (13 mm)	In the high temperature and high humidity environment, paper becomes wavy; in the low temperature and low humidity environment, paper curls significantly. When the maximum amount of paper is set in the ASF, and if the paper-return tab fits in a wave or curl of the paper, the tab slips and does not catch paper properly, causing paper feed problems.	- Reduce the amount of paper set in the ASF to half (approx. 5 mm high).	- Multiple sheets of paper feed at the same time. - Paper feeds at an angle. - A paper jam occurs.
3	C	Print results	Skewed paper feeding (at the level of +/- 1%)	- Paper feeding from the ASF - Credit Card size	Since coaxial tolerance between the pinch roller and the LF roller, which determines the paper feed alignment, is 0.2mm, skewed paper feeding can occur. However, according to the field data of current models, the skewness level caused by the coaxial tolerance of 0.2mm is within the criteria of +/- 1%, thus the phenomenon is left as is.	- Align the paper guide to the paper edge tighter than usual.	- Paper feeds at an angle. - A margin appears on printouts.
4	A	Print results	Soiling on the back side of paper (lines or streaks parallel to the paper feed direction)	- After continuous borderless printing of small sized paper (such as 4 x 6), when a larger sized paper (such as A4) is printed. - With Photo Paper Plus Double Sided or postcards, the phenomenon is likely to be noticeable and to be complained of by users, as printing is performed on both sides of such paper.	In borderless printing, printing is performed to the size slightly larger than the paper size, and ink off the paper is absorbed by the platen's ink absorber. Absorbed ink may attach to the platen rib(s) after several dozen sheets are printed, causing soiling at the leading edge of paper or on the back side of paper.	1. Perform Bottom plate cleaning (from the MP driver or via the operation panel) up to 3 times*1. 2. If soiling on the paper still remains after Bottom plate cleaning, wipe the platen rib(s) and their surroundings with a cotton swab.	- Paper gets smeared. - The back side of paper gets smeared.
5	B	Print results	Soiling on paper in automatic duplex printing (lines or streaks perpendicular to the paper feed direction)	- Automatic duplex printing (Photo Paper Plus Double Sided, postcards, plain paper)	On the rib(s) inside the sheet feed unit used for duplex printing, ink mist may accumulate, smearing paper.	Temporary operational solution: Cancel automatic duplex printing, and manually print each side of paper. Cleaning by user: 1. Perform Bottom plate cleaning (from the MP driver or via the operation panel) up to 3 times*1. 2. If soiling on the paper still remains after 3 times of Bottom plate cleaning, wipe the platen rib(s) and their surroundings with a cotton swab. If the phenomenon persists after conducting 1 and 2, servicing is required. Service: Wipe any soiling or dirt off from the sheet feed unit and the bottom case unit ribs*2.	- Paper gets smeared. - The back side of paper gets smeared. - Even after Bottom plate cleaning was performed, and the platen ribs were cleaned with cotton swab, paper gets smeared.
			Scratches on paper	- PP-101D, PP-101, PR-101, SG-101, etc.	Scratches on the PF return lever due to paper feeding	- Change the paper feeding method from the cassette	- Paper is scratched. - Marks appear on

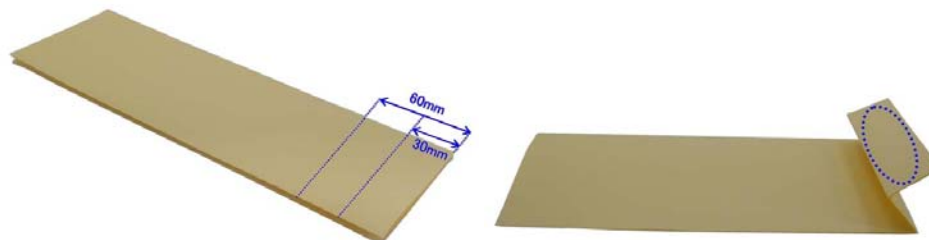
6	C	Print results		<ul style="list-style-type: none"> - Paper feeding from the cassette 	from the cassette, and duplex printing path.	<ul style="list-style-type: none"> to the auto sheet feeder. - If automatic duplex printing is performed, cancel it, and, by setting only a single sheet of paper in the auto sheet feeder, manually print each side of paper. 	printed paper.
				<ul style="list-style-type: none"> - PP-101D, PP-101, PR-101, SG-101, etc. - Paper feeding from the ASF - Multiple number of sheets loaded 	When multiple sheets of paper are set, the back side of paper being picked up scratches the front side of paper beneath (especially where the paper feed rollers contact when picking up the paper).	Set only a single sheet of paper in the auto sheet feeder.	
7	C	Print results	Soiling on paper	The machine has been used for a long period of time with the ASF cover closed before printing is performed using the ASF.	<p>Due to ink mist attached to the ASF sub-pick-up rollers.</p> <p>If printing is done from the cassette with the ASF cover closed, ink mist is kept inside the machine, attaching to the ASF sub-pick-up rollers.</p> <p>Since the sub-rollers usually do not contact the paper, ink mist can easily accumulate, especially during printing on small-sized paper which never contacts the sub-rollers.</p>	Clean the ASF sub-rollers (see *3 for details).	
8	B	Print results	Skewed paper feeding	<ul style="list-style-type: none"> - SG-101 - Paper feeding from the ASF - 10 sheets (max.) set in the ASF 	When 10 sheets of paper are set in the ASF, and if they warp significantly, the warping portions of paper get over the cover guide, not being aligned along the guide properly.	<ul style="list-style-type: none"> - Straighten the paper. - Set 5 or less sheets of paper in the ASF. 	<ul style="list-style-type: none"> - Paper feeds at an angle. - A margin appears on printouts.
9	B	Print results	Uneven printing at the trailing edge of paper	- In the low temperature and low humidity environment	Due to decrease of the friction coefficient and inaccurate print head alignment.	<ul style="list-style-type: none"> - Perform Manual print head alignment. - Perform Bottom plate cleaning. 	- Uneven printing at the bottom of the paper.
10	B	Print results	Print smeared	<ul style="list-style-type: none"> - When the inner cover is not completely closed. - High-density image printing 	When printing on paper is done with the inner cover open, the print immediately after ink is ejected on paper is scratched by the bottom of the inner cover, resulting in smeared print.	Close the inner cover completely.	- Printing gets smeared.
11	A	Image scanning	Spots on a scanned image	<ul style="list-style-type: none"> - Glossy photo (original) - In the high humidity environment 	When a glossy photo is strongly pressed on the platen glass, the photo will stick to the glass, and the stuck points are scanned as spots.	<ul style="list-style-type: none"> - Do not strongly press the photo on the platen glass. - Clean the platen glass (to eliminate any moisture). 	- Spots appear on the scanned image, though there is no such spots on the original document.
12	C	Display on the LCD	Improper trimming in Layout print (orientation difference of an image between the LCD and a printout)	<ul style="list-style-type: none"> - Card Direct printing - Photos taken with a DoCoMo mobile phone 	<p>For photos in general, both the thumbnail and the original image are in landscape.</p> <p>However, when original images are in portrait while thumbnails are in landscape, the trimming frame shifts from the correct position in some instances.</p>	The phenomenon is left as is.	- Print result differs from what is displayed on the LCD.
13	A	Image scanning	Improper area of cropping, or skewed scanning	<ul style="list-style-type: none"> - Scanning using MP Navigator - MP Navigator settings: Document type: Black and white document, or color document Document size: Auto detect 	Due to a bug in MP Navigator 2.0. Since the automatic cropping process is incorrect, improper correction of skewed scanning is done depending on a document, resulting in the skewed scanning.	<ul style="list-style-type: none"> - An information sheet regarding the phenomenon is packed with the machine in early production. - MP Navigator will be upgraded on a running-change basis. - If the phenomenon occurs, cancel "auto detect" and select the paper size (the full paper size). Trim margins 	<ul style="list-style-type: none"> - An image is scanned at an angle. - Some portions of an image is not scanned.

					(white area along the edges of the scanned image), if any.	
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- *1: Change the paper in each Bottom plate cleaning. The cleaning can end when paper does not get any soiling.
- *2: Locations to clean in servicing when soiling on paper in automatic duplex printing persists:



- *3: How to prepare and set the ASF sub-roller cleaning sheet:
- 1) Fold a sheet of plain paper lengthwise in half.
 - 2) Fold the paper at approx. 60 mm from the end, and fold the folded end in half backward, as shown below.



- 3) Moisten the folded end portion (indicated by the blue circle in the figure above) using a wipe, and set the paper in the ASF so that the moistened edge of the paper contacts the 2 sub-rollers. Then, fold the other end of the paper along the ASF cover edge to hook the paper to the ASF cover, as shown below.



- 4) With the machine turned on in the user mode, set the paper source to the ASF and press the Menu button. Select Maintenance / Settings, Maintenance, then Roller cleaning.
- 5) The paper wipes off ink from the sub-rollers.

* Occurrence level:

- A: The symptom is likely to occur frequently. (Caution required)
- B: The symptom may occur under certain conditions, but likeliness is assumed very low in practical usage.
- C: The symptom is unlikely to be recognized by the user, and no practical issues are assumed.

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Part 3

APPENDIX



3. PIXMA MP950 SPECIFICATIONS

<Machine>

Type	Desktop serial color inkjet printer																	
Paper feeding method	Auto sheet feed (ASF, cassette, automatic duplex printing, CD / DVD printing*1)																	
Resolution	9,600 x 2,400dpi (Max.)																	
Throughput (target value)	- 4 x 6, borderless printing: Approx. 46 sec. (standard mode, PP-101, Full Page SCID No. 2) For reference: <table><tr><td></td><td>Fast</td><td>Standard</td></tr><tr><td>Black (Fine Black)</td><td>29ppm</td><td>15.0ppm</td></tr><tr><td>Color (Fine Color)</td><td>22ppm</td><td>9.8ppm</td></tr></table>					Fast	Standard	Black (Fine Black)	29ppm	15.0ppm	Color (Fine Color)	22ppm	9.8ppm					
	Fast	Standard																
Black (Fine Black)	29ppm	15.0ppm																
Color (Fine Color)	22ppm	9.8ppm																
Printing direction	Bi-directional, uni-directional																	
Print width	Max. 203.2mm (216mm in borderless printing)																	
Interface	USB 2.0 Hi-Speed																	
ASF stacking capacity	Plain paper: Max. 13mm (Approx. 150 sheets of 64g/m ² paper)																	
Cassette stacking capacity	Plain paper: Max. 13mm (Approx. 150 sheets of 64g/m ² paper) (Photo Stickers and Credit Card size not supported)																	
Paper weight	64 to 105g/m ²																	
Detection functions	Scanning unit open, Presence of print head / ink tanks, Remaining ink amount (optical / dot count), Opening / Closing of inner cover, Printing position, Paper presence, Paper end sensor, Waste ink amount, Internal temperature, Pick-up roller, Paper feed roller position, Carriage position, Head-to-paper distance, Supported camera direct printing device, Presence of CD / DVD*1, Scanner home position																	
Acoustic noise (Highest print quality)	- Highest print quality settings: Approx. 34.1dB (print from a computer) / 40.8dB (copy) - Quiet mode: Approx. 33.6dB																	
Environmental requirements	<table><tr><td rowspan="2">During operation</td><td>Temperature</td><td colspan="2">5C to 35C (41F to 95F)</td></tr><tr><td>Humidity</td><td colspan="2">10%RH to 90%RH (no condensation)</td></tr><tr><td rowspan="2">Non operation</td><td>Temperature</td><td colspan="2">0C to 40C (32F to 104F)</td></tr><tr><td>Humidity</td><td colspan="2">5%RH to 95%RH (no condensation)</td></tr></table>				During operation	Temperature	5C to 35C (41F to 95F)		Humidity	10%RH to 90%RH (no condensation)		Non operation	Temperature	0C to 40C (32F to 104F)		Humidity	5%RH to 95%RH (no condensation)	
During operation	Temperature	5C to 35C (41F to 95F)																
	Humidity	10%RH to 90%RH (no condensation)																
Non operation	Temperature	0C to 40C (32F to 104F)																
	Humidity	5%RH to 95%RH (no condensation)																
Power supply	Power supply voltage, frequency AC 100 to 120V, 50/60Hz AC 220 to 240V, 50/60Hz	Power consumption Approx. 22W Approx. 22W	Standby Approx. 2.0W Approx. 2.0W	Power-off Approx. 0.8W Approx. 0.8W														
External dimensions	Machine: With the front door and paper support retracted: Approx. 468 (W) x 415 (D) x 263 (H)mm																	
Weight	Approx. 12.8kg, not including print head and optional units																	
Related standards (Machine, Adapter)	Electromagnetic radiance: VCCI, FCC, IC, CE Mark, Taiwan EMC, C-Tick, CCC (EMC), Korea MIC, Gost-R Electrical safety: Electrical Appliance and Material Safety Law (DENAN), UL, C-UL, CB Report, CE Mark, GS, Gost-R, FT, SASO, CCC, SPRING, Korea EK, IRAM (Argentina) Environmental regulations: RoHS (EU), WEEE (EU), Korea Package Recycle Law, Green Point (Germany), Energy Star, Eco Mark, Law on Promoting Green Purchasing																	
Serial number location	On the carriage flexible cable holder (visible when the scanning unit is open)																	
Remaining ink amount detection	Available (automatic detection by optical method and dot count, enabled at default)																	
Paper type detection	Not available																	
Print head alignment	Available (automatic or manual alignment via MP driver Maintenance, or via the operation panel button)																	

*1: Only for CD / DVD printing supported regions

<Scanner>

Type	Flat bed scanner (scanning of a fixed document by a moving scanner head, FAU attached)
Sensor type	CCD (Charge Coupled Device): 3,200 dpi / 800 dpi dual
Optical resolution	3,200 x 6,400 dpi (max.)
Scanning resolution (software interpolation)	19,200 x 19,200 dpi (max.)
Gradation	Grayscale: 48 bit / 8 bit (Film scanning: 48 bit / 16 bit, or 48 bit / 8 bit) Color: 48 bit / 24 bit (RGB each color 16 bit / 8 bit) (Film scanning: 48 bit / 48 bit, or 48 bit / 24 bit)
Document size	A4 / LTR (max.)

<Copy>

Copy quality	3 levels (Fast, Standard, High)
Intensity	9 levels (automatic intensity adjustment available)
Enlargement / reduction	Preset ratio: max. (400%), 4 x 6 -> 8.5 x 11 (212%), 5 x 7 -> 8.5 x 11 (170%), A4 -> 8.5 x 11 (95%), min. (25%) Zoom: 25 to 400% (in increments of 1%)
Document size	A4 / LTR (max.)
Number of continuous copies	Monochrome / color: 1 to 99 copies

<Print head>

Type	Single head with 7 removable ink tanks (each color)
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Print head	Pigment-based BK: 512 nozzles, 600 dpi, 30 pl Dye-based BK / C / M / Y / PC / PM: 512 x 6 nozzles, 1,200 dpi, 1 pl / 5 pl (C / M / PC / PM), 5 pl (BK / Y)
Ink color	Pigment-based black Dye-based black, cyan, magenta, yellow, photo cyan, photo magenta
Ink tank	PGI-9BK (pigment-based), BCI-7eBK / C / M / Y / PC / PM (dye-based)
Weight (Net)	Print head, approx. 68g
Supply method	As a service part (not including ink tanks)
Part number	QY6-0062-000

<Supported ink tanks>

Model name and destination		Pigment-based ink		Dye-based ink											
		BCI-9BK	PGI-5BK	BCI-7eBK	BCI-7eC	BCI-7eM	BCI-7eY	BCI-7ePM	BCI-7ePC	CLI- 8BK	CLI- 8C	CLI- 8M	CLI- 8Y	CLI-8PM	CLI- 8PC
PIXUS MP950	Japan	O	X	O	O	O	O	O	O	X	X	X	X	X	X
PIXMA MP950	Other than Japan	X	O	X	X	X	X	X	X	O	O	O	O	O	O

O: Usable

X: Not usable

Note: The ink tanks for the Japanese models are not compatible with those for the non-Japanese models. Be sure to use the appropriate ink tanks in servicing.

<Direct printing>

Memory card drive	Supported memory card	Compact Flash TYPE I/II (3.3V), Microdrive, SmartMedia Card (3.3V only), Memory Stick, Memory Stick PRO, SD Card, MultiMedia Card, xD-Picture Card, miniSD memory card, Memory Stick Duo*, Memory Stick PRO Duo*
Storage function	Operation	Via the machine buttons.
	Condition	Before changing the settings, the memory card must be removed.
	Function	Read / Write
Card Direct Printing	Operation panel	3.6 color LCD, 20 buttons, 9 LEDs
	File format	JPEG (DCF, CIFF, Exif 2.21 or prior, JFIF), DPOF compliant
	Print quality	Standard, High
	Image correction function	Photo Optimizer PRO, VIVID, noise reduction, face brightener, image optimizer
	Image adjustment function	Brightness, contrast, hue (skin tones)
	Image processing function	None
	Image retrieval function	Available (date)
	DPOF	Ver. 1.00 compliant Index printing, printing of an image the specified number of copies, printing of the specified image(s), printing with the shooting date
	Print layout	Single-photo/multi-photo/all-photo printing: 1 photo per page (borderless/with borders, only with borders for plain paper)
		DPOF printing: 1 photo per page (borderless/with borders) 6, 15, 24, 35, 80 photos per page 30 photos per page (panorama)
		Index printing: 6, 15, 24, 35, 80 photos per page 30 photos per page (panorama)
		Layout printing: 2, 4, 8 photos per page (borderless/with borders) Postcard (borderless/with borders, with/without lines) Album (4 photos per page, right/left) Mix 3 types (for A4/LTR)
		Sticker printing: 2, 4, 9, 16 stickers 1, 5, 6, 7 stickers (for free-cut)
	Information print	Date, file number, Exif information
	Throughput	Approx. 57.5 seconds, with the following conditions and settings: - Photo Paper Pro - 4 x 6 borderless - A photo from a 5 mega-pixel digital camera - Exif print - Standard print quality - Process from pressing the printing start button to ejecting paper
	Supported digital camera	Digital cameras and digital video cameras supporting Bubble Jet Direct or PictBridge
	Print layout	- 1 photo per page (borderless/with borders) - 2, 4, 9, 16 photos per page (with borders)
	Information print	Date, file number

Camera Direct Printing	Throughput	Approx. 56.6 seconds, with the following conditions and settings: - Photo Paper Pro - 4 x 6 borderless - A photo from a 5 mega-pixel digital camera - No image correction - Exif print - Standard print quality - Process from pressing the printing start button to ejecting paper
Print Beam printing	Supported mobile phone	Mobile phone equipped with IrDA 1.2 port, or with Bluetooth 1.2 port
	Printable data	Image (JPEG only, text printing not possible)
	Supported layout	1, 2, 4, 8 images per page (borderless) 1, 2, 4, 5, 6, 7, 8, 9, 16 images per page (bordered)
Printing via Bluetooth communication (optional BU-20)	Standard	Bluetooth version 1.2
	Output	Bluetooth Power Class 2
	Communication range	Good for approx. 10 m in radius (depending on interference between the communication devices, or radio wave conditions)
	Frequency band	2.4GHz
	Communication speed	Approx. 720kbps
	Supported profile	BIP, OPP, SPP, HCRP
	Supported OS for HCRP	- Windows XP Service Pack 2 or later - Windows XP Service Pack 1 or later: Microsoft "Support for Bluetooth Wireless Devices" or Toshiba Bluetooth Stack for Windows Ver. 3.00.10 or later has to be installed - Mac OS X 10.3.3 or later
	BU-20 external dimensions	18.5 (W) x 47.5 (D) x 8.7 (H) mm with a cap
	BU-20 weight	Approx. 7g
	BU-20 power supply voltage	4.4 to 5.25V
	BU-20 power consumption	500mW (max.)
	BU-20 operating temperature	5C to 35C (41F to 95F)
	BU-20 operating humidity	10%RH to 90%RH (no condensation)

* Adapter required.

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